U.S. CONGRESS. SENATE.

SELECT COMMITTEE ON NATIONAL WATER RESOURCES

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WATER RESOURCES

THE UNIVERSITY
OF MICHIGAN

MAY 17 1960

MAIN
READING ROOM

HEARINGS

BEFORE THE

SELECT COMMITTEE ON NATIONAL WATER RESOURCES

UNITED STATES SENATE

EIGHTY-SIXTH CONGRESS

SECOND SESSION

PURSUANT TO

S. Res. 48

INDIANAPOLIS, IND., FEBRUARY 5, 1960

PART 20

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(Pursuant to S. Res. 48, 86th Cong.)

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WATER RESOURCES

FRIDAY, FEBRUARY 5, 1960

U.S. SENATE,
SELECT COMMITTEE ON NATIONAL WATER RESOURCES,
Indianapolis, Ind.

The select committee met at 10 a.m., pursuant to Senate Resolution 48, in room 203, U.S. Federal Building, Senator Robert S. Kerr (chairman) presiding.

Present: Senators Kerr, Hart, and Hartke.

Also present: Theodore M. Schad, staff director of the select committee, and Paul McBride, chief clerk.

The CHAIRMAN. The hearing will come to order.

For the committee, I would like to say that we are happy indeed to be in Indianapolis, the home State of two of our most able colleagues in the Senate. We are delighted that our good friend, Vance Hartke, is here with us to participate in this hearing.

We have been made keenly aware of the tremendous need for greater conservation of water, both in the Ohio Valley and in the basin of the Great Lakes.

There has been a tremendous development here in Indiana, based on the conservation and use of the soil and water resources. But when we realize that our population will double in the next 40 years, that the gross national product which has now reached a staggering total of $500 billion per year will double in the next 20 years, we know that the demands upon the water resources of our country are going to be beyond anything that we have ever dreamed of or contemplated or prepared for.

History has demonstrated that both agricultural and industrial production occur in the areas where the environment makes it possible, and one of the most important elements in that environment is an abundance of usable water.

In Indiana, as in Oklahoma and so many other States, you have either been bedeviled with too much water in a limited time, creating devastating floods and then the water going on out of your State, or with periods of drought during which you suffer a penalizing scarcity of water.

It is the hope of our committee to develop information that will enable the Congress of the United States and especially the Senate to formulate a policy that will result in our country and all of its States moving forward aggressively in the conservation and development of water resources, so that this tremendous growth that will occur in our country can be accommodated.

We know that the great workshops and sources of agricultural production that are going to bring this tremendous increase will be in the areas that are prepared.

There is no area having a greater potential or having people more aware of their potential and determined to do something about it than in the Great Lakes basin and the Ohio Valley.

And we are glad to be here. We are honored to have your Governor with us and we will be happy if he will give us his statement at this time.

Governor Handley.

STATEMENT OF HON. HAROLD W. HANDLEY, GOVERNOR OF THE STATE OF INDIANA

Governor HANDLEY. Senator Kerr, Senator Hart, and Senator Hartke, I think apropos of the weather outside that this is quite the day to discuss this very important problem. We are very appreciative that you would take time to come to Indiana to hear the testimony of people so vitally involved throughout this entire section of the country.

I know that Indiana is very pleased that you are conducting one of your important hearings here and I think I bespeak the sentiments of the other Governors who were unable to be here with us, because prudent use of water resources is the one truly vital domestic problem confronting our Nation.

In 1957 we had the flood conditions of which you spoke a short time ago, Senator, that affected over 1 million acres of our farmland here in the State of Indiana. It, in fact, took that many acres out of production. And, of course, it had quite a negative impact on our entire economy.

I think that the statements submitted by Indiana to your committee, both at your Washington office and at your hearing in Detroit last October, demonstrated that we appreciate the magnitude of our inquiry. So I would like to be permitted to comment further.

Briefly, I think that most Indiana citizens are much aware of the frequent abuse of Federal-State relationships, as we see them. Where manmade problems arise, we have always asked a scrupulous selectivity in the exercise of proper governmental functions by the governmental units most directly involved. Thus, we have consistently opposed overcentralization of authority in Washington, and have earnestly asserted the rights and duties of the several sovereign States. We believe that local communities can best handle local situations entirely.

But we also recognize that where nature and the divine plan are involved manmade boundaries do not necessarily pertain. The sources of water, the uses of water, and the flow of water are frequently interstate. The squandering of water, floods, and other immoderate situations can basically affect individuals and operations far removed from the first and the immediate scene. Therefore, an understanding and cooperative partnership between Federal, State, and local units of government is imperative to keep an effective balance in the use and management of water.

So we applaud the efforts of your committee to increase the efficiency and relationships of the various Federal departments and agencies concerned with this very complex problem and program.

We also look forward to your recommendation of a law whereby the Congress will clarify and assure without question the position of the

States as the prime units for determination of water rights. Past and present differences and misunderstandings have resulted frequently from this honest doubt as to authority and definitions. It would be fallacious and wrong to attempt to center in Washington the power to determine what is to be done in every State and every local community when weather, terrain, and other factors vary and are so diverse.

In Indiana we are conscientiously trying to do what we can to conserve and impound at the headwaters, thus assuring available supply at all times and also retarding floods in periods of excessive rain. We are clearing channels of both small and large streams where high waters periodically occur, thus minimizing damage from debris jams and backwaters. Thousands of privately owned ponds and lakes are being built, in addition to State projects. We are regulating both pollution and waste.

A few days ago on January 25, Governor Stratton and I signed the new Wabash Valley compact, a new joint program of the States of Illinois and Indiana for unprecedented development and survey of the important Wabash River and all its tributaries. We have enthusiastically participated in the antipollution efforts of the Ohio River Valley water sanitation compact. We are an active member of the Great Lakes Commission, which also includes Minnesota, Wisconsin, Illinois, Michigan, and Pennsylvania. We will support any similar regional efforts, preferring them to any extension of the Federal authority in basinwide resources programs.

Upon my earnest recommendation, the 1959 Indiana legislature went far in supporting water management proposals. It appropriated $20,000 to start the Wabash Valley compact and also legalized that proposal. It appropriated $165,000 for eight study projects on the upper reaches of various Indiana rivers. It increased appropriations for existing flood control facilities and created a new legislative commission to study water rights as they pertain to individuals.

Moreover, the legislature agreed with the administration in appropriating $250,000 as Indiana's share of a long-projected flood control program on the upper Wabash and its tributaries, and also $1 million to help construct a new reservoir in Monroe County in southern Indiana.

I think most important of all, perhaps, is that it established a new $2 million fund whereby the State will make loans—not grants, but loans—to local communities to enable them to determine scientifically what they may need for their own flood control programs. I am happy to say that a great deal of that appropriation has already been used and that this appropriation has been taken advantage of by various communities and cities throughout the State.

The State of Indiana is doing its part in cooperating with Federal flood control projects in this area. These facts are cited to demonstrate that we recognize we must share the load, both with our own communities and also with the Federal Government.

To summarize, we hope that (1) activities of various Federal agencies will be better coordinated; (2) relationships of the Federal Government and the State governments will be clarified; and (3) the riparian rights and other inherent interests of individual property owners will be respected by a recognition that State and local authorities can better handle these diverse situations than can Washington.

I appreciate your courtesy in inviting me here, and I think we will be awaiting with utmost interest the final report of your findings and conclusions.

Thank you so much for the opportunity of appearing before you.

The CHAIRMAN. Thank you very much, Governor Handley, for the interesting and enlightening statement.

Now, one of the greatest members of our committee is from your neighboring State of Michigan, Senator Hart. One of the outstanding hearings this committee has held was in Detroit, and I believe we have some testimony from representatives of your State there.

Senator Hart, have you anything to say?

STATEMENT OF HON. PHILIP A. HART, U.S. SENATOR FROM THE STATE OF MICHIGAN

Senator HART. Only, Mr. Chairman, to express my pleasure at the opportunity to visit our neighbor whose interests are about comparable to ours. Both of our States are thought of as States very rich in water, and I think in the not-too-distant past we have been wasteful of it. This was because it was right at our doorsteps (more so in Michigan than in Indiana, except in your northern reaches). There was so much that we thought we only had to worry about the people in the Southwest. All of a sudden we realized that this water shortage happens every place, and that industrial growth is affected significantly by the availability of water. Surely, the steel mills in Indiana long have been trying to tell us this.

I am sure that Indiana is responding, as we hope we are in Michigan, to the realization that no matter how sincere and industrious the efforts of the people that make up the community are for its economic growth, if water is not there, salesmanship will not bring industry; if water is there we all will have a much happier economic outlook.

I think among the many things that your committee hearings may produce is a clearer understanding of the enormous limitation that inadequate water supply imposes upon economic growth.

Governor Handley's comment about the compact concept prompts me to say that even those who are genuinely concerned with the difficulties in achieving a workable relationship between the Federal and State Governments not always are mindful of the great potential in these interstate compacts. A relatively new device in the river valley probably will be the means whereby the full use of interstate compacts may come about because here nature gives us the handhold; if we will just apply these devices, these compacts, I am sure we will move ahead.

The Wabash compact has not yet been approved by the Congress, has it Governor?

Governor HANDLEY. Yes, it has been approved and both States have signed it.

Senator HART. It has?

Governor HANDLEY. Yes.

Senator HART. Thank you.

The CHAIRMAN. Thank you very much, Senator Hart.

As I said one of the pleasures of our committee is working with your distinguished Senator, Vance Hartke.

Senator Hartke, have you anything you want to say for the record or to these fine people here?

STATEMENT OF HON. VANCE HARTKE, U.S. SENATOR FROM THE STATE OF INDIANA, AND HOMER E. CAPEHART, U.S. SENATOR FROM THE STATE OF INDIANA

Senator HARTKE. First, I am very delighted to be back in Indiana as I always am. I am especially delighted today when I can bring two distinguished colleagues and two outstanding Members of the U.S. Senate and two friends of mine, Senator Kerr and Senator Hart, to this wonderful State of ours to show them what America is really like.

This is, we think, not alone the crossroads of America—and with all deference to Oklahoma and Michigan—we think this is the greatest State in the Union, Senator.

I am glad you are here to enjoy part of it. Ordinarily, we have sunshine, but the Governor indicated that he is quite accommodating and today he arranged for a little water for the water hearings. He thought that that was best.

I am delighted to have Governor Handley here today and this fine statement he has given us. I know he has made great strides for the State of Indiana and taken a lead in this particular field and is doing a fine job for the entire State. Knowing full well that you cannot do these things unless you have people working together, this is what we are doing. He was in Washington this week and we were working on some other things together looking to the future of the State of Indiana. I say that with full recognition that sometimes some people get the impression that Governor Handley and I might be on opposite sides of the fence. That is just during the political campaign. The rest of the time we work for the benefit of the State of Indiana.

Also I would like to say that the State of Indiana wants to invite you to give special consideration to our problems. I am not alone here as a U.S. Senator today, but I also represent myself as a taxpayer and as a private citizen. I am here in a dual capacity. I am also a family man and one who has children who are expecting that this will be their future home. So I have a very deep and keen interest in what goes on here.

It is with a great deal of sadness that I express the regret that our distinguished colleague, Senator Capehart, could not be with us today. But we know the tragedy that recently befell his family, and he asked that my prepared statement be considered as a joint statement. He approved of it, and we are presenting this as a united statement rather than one just of my own. And I hope the record will indicate that accordingly.

As soon as I received communication from your committee outlining the eight parts of the information that you are attempting to seek, I thought it was very imperative that Indiana get on record as to where it stood. That was the reason I wanted the committee to come to Indiana. There are many reasons for this.

We have a very central location here in Indiana in the Nation. We have been able to maintain a very stable balance between urban and

rural living. We are a leading industrial State, ranking eighth on the basis of "value added by manufacture," and still we are a major agricultural State, ranking sixth in the farm income in the Nation.

The basis of Indiana's wealth probably is water. The availability of water for manufacturing, for farming, and for transporting to market the products of factories and the farms, to me is truly the cornerstone of Indiana's wealth.

There are many contributing factors, of course, such as our industrious labor force, the availability of raw materials, and the proximity of markets. But all these factors would be as latent potential if it were not for the rich blessing of abundant water resources.

I daresay, Mr. Chairman, that of all the States in this great Union which your committee has had the privilege of investigating and visiting, that few, if any, can offer as broad a concept of our water resources needs as can the State of Indiana. I do not want to take the time to go into the individual details which other witnesses will give here to you today.

I see here today men who have worked diligently with these details. Some of those are from the Ohio Valley Improvement Association, Wabash Valley Association, the Indiana Flood Control and Water Resources Commission, and many others.

I should like as a Senator to direct my remarks to the committee's statement of interest in the extent to which water resources activities in the United States are related to the national interests.

Obviously, water resources development does not affect the national interest to the same degree in all States or all regions of our Nation. It is equally obvious, on the other hand, that as our population expands, as our industrial might grows, as our transportation facilities are increasingly strained, our Nation's water resources development will have an increasingly precious and strategic relationship with the national security.

As an example of this, we have seen our country grow from an agrarian economy to a manufacturing economy with little or no concern for a comprehensive program of national conservation of our natural resources. The existence of your committee, Mr. Chairman, points up the fact that the problem is pressing but that little action has really been taken to remedy the problem.

But the evidence before your committee and other committees of the Congress who are necessarily concerned with this problem suggests that it is high time that positive action be taken to bring about a change in national policy concerning water resources.

As our economy and our way of life has matured and grown, it has been allowed to feed upon our natural resources in an almost indiscriminately abusive fashion. It has fed on this rich diet of heretofore boundless natural resources. They, in my opinion, have dwindled to a very dangerous point. The age old law of supply and demand is catching up with us. I suggest that in continuing the policies of indiscriminate waste and pollution, of not modernizing our river navigation system, we will slowly strangle or at least seriously retard our Nation's growth. To successfully continue our dynamic and prosperous way of life we must abandon these methods and practices of the past.

It is an absurd fact, Mr. Chairman, that the existing navigation structures on the Ohio River were originally authorized on the basis of an estimated annual tonnage of 13 million. By 1929, when the original canalization was completed, however, the river tonnage already amounted to 22 million or 70 percent more than the anticipated load. And in 1957, Mr. Chairman, these same antiquated structures were serving a waterway over which more than 81,500,000 tons were carried. This is more than 1½ times the amount of tonnage carried through the Panama Canal during its peak year of 1957. The States are doing their best, Mr. Chairman, and Indiana is outstanding, in my opinion, in this regard.

I say with a great deal of Hoosier pride that my own State of Indiana realized this problem some years ago, and they undertook an ambitious forward step by forming the Indiana State Water Resources Commission. I am sure that the Commission's report made in 1956 has been made available to your committee. Indiana has entered into water resources pacts, as indicated here previously, with neighboring States. The Ohio Valley Improvement Association and the Wabash Valley Association are private citizen groups dedicated to the job of preserving the riches of the Ohio and Wabash River Basins.

It is evident, Mr. Chairman, that on the State and local level, Indiana is leaving no stone unturned in fulfilling its obligations to preserve its water resources.

But because of the Federal Government's constitutional preemption in the general field of navigable inland waterways and the tributaries of those waterways, it is recognized that the planning and execution of water resources measures by the States alone is rather limited. This is but one reason for the Federal Government to more fully realize its obligation in this field.

Ten years ago, President Harry S. Truman, in realizing this obligation, created the President's Water Resources Policy Commission. One year later, on February 19, 1951, that Commission submitted a most comprehensive report to the President outlining a water policy for the American people.

In closing, Mr. Chairman, I would commend to those in all branches of our Government this advice from a great Senator, Daniel Webster, which is inscribed on the wall behind the Speaker's chair in the House of Representatives.

At every joint session I read it with utter amazement at the depth and perception that this man had. He said:

> Let us develop the resources of this land, call forth its power, build up its institutions, promote all its great interests, and see whether we also in our day and generation may not perform something worthy to be remembered.

Senator HARTKE. I have with me, Mr. Chairman, the statement of the Honorable William G. Bray, who is a Member of Congress from the Seventh Congressional District. I want to submit his statement as though read in person.

He regrets he cannot be with us. I also have a statement here of Mr. Earl Hogan, a Representative in Congress from the Ninth Congressional District, who also indicated that due to the press of congressional business he could not be with us today.

The CHAIRMAN. They will be made a part of the record, Senator.

(The statements referred to follow:)

STATEMENT OF HON. WILLIAM G. BRAY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. Chairman, I regret that the press of legislative business in Washington prevents my appearance in person before this committee. The subject of water resources has been of great interest to me for some time and I am particularly interested in the way Indiana is situated in regard to this great resource.

During the 82d Congress, which was my first term of office, I served as a member of the House Committee on Public Works. In that capacity, I had an opportunity to gain firsthand knowledge of the water problems in many areas of the country. I soon realized that Indiana is, in reality, very fortunate to have adequate water supplies available throughout all parts of the State. We have no large areas in Indiana which are outside of the reach of streams and rivers and, in general, although we have water problems, we have the natural facilities with which to meet these problems.

It is true that water is not an unmixed blessing. The streams and rivers of this Nation, when left unharnessed, can do great damage. They can inflict great loss of life and loss of property. For many years it has been recognized that the Federal Government has a responsibility in the major streams of the Nation, to provide flood control assistance and help in long-range sensible conservation of this resource.

Just last week we in Indiana took an important step in the development of the Wabash Valley. An interstate compact creating the Wabash Valley Commission was signed in Terre Haute by Governors Handley of Indiana and Stratton of Illinois.

For years we have been working toward that day. The Wabash Valley Association was formed to promote the interests of the area, and I am proud to be a charter member of the organization. This group seeks the fruitful conservation and use of the natural resources of the area, practical protection from floods, the improvement of transportation facilities, land conservation and agricultural expansion to meet the food demands of a growing population, the enhancement of the area as the site of industrial development, and the coordination of all private and governmental units in realizing the full potential of these people and their resources. One of the first objectives was to get formal approval of an interstate agency—the compact which was approved by Congress last year and signed last week.

Under the compact the State of Indiana and the State of Illinois created a seven-man commission to coordinate plans for the development, utilization and conservation of the water, land and other natural resources of the Wabash Valley. In its operation it is expected that the commission will make full use of local and private assistance.

When this joint effort was suggested there were those who said it was an unusual way to approach development of water resources. We felt, however, that there are intrinsic values to having the programs developed by local people. Of course, the interests of various Federal agencies will be ascertained, and the commission cannot and will not attempt to invade the areas of Federal responsibility. We will have, however, an agency composed of people on the scene, drawing ideas and research from the people in the area who should be in the best position to judge the actualities.

In testifying in behalf of the legislation authorizing the commission, I said, "We in Indiana are 'do it yourself' fans. We believe that we can do it ourselves, in many ways, better than someone else can do it for us. We ask this opportunity to bring our best brains, and especially our enthusiasm, to bear on the problems of our area. We want to participate with the Federal Government in its plans for flood control and navigation development. We will enlist the aid of the Federal Government in those activities which are within its sphere of control, but we will bring to those programs our on-the-scene criticisms and judgments."

Upon the occasion of the signing last week, President Eisenhower sent his congratulations, and said, "The cooperative effort by the people of Illinois and Indiana is a challenging experiment in planning and execution of water and land resources development." He went on to say that the compact "can establish a basis for continued State and local initiative and responsibility."

No one can tell what the final accomplishments of this compact will be, but it can vitally affect the future of the entire Wabash Valley, which includes the entire basin, not merely the area immediately adjacent to the river's banks. It includes the counties along both forks of the White River, the Patoka River, and all of the other tributaries of the Wabash River.

The area is doubly blessed for it has rich resources of coal, in addition to plentiful water. The combination of those two resources has always been attractive to industry. The Wabash Valley can easily become an American Ruhr.

Through history we have seen that the development of great civilizations has followed the course of mighty rivers. This was true in the early settlement and westward development of our own Nation. The Wabash formed the important vertical waterway for Indiana and Illinois, joining the Ohio at the southern end of our State.

I am confident that we have not begun to exhaust the rich potential of the area and that our cooperative efforts through the compact will do much to create a fuller life for all of us in this fertile valley.

The work of harnessing the Wabash is in many ways only just begun. It is a long river, a mighty one, and of course, a river inextricably woven into the fabric of Hoosier history and customs. We seek its control not for sentimental reasons, however, but for the very real damage which it periodically—and almost regularly—inflicts upon the surrounding cities and farms. Throughout the years we have felt that Indiana has received less than her share in Federal assistance in this field—less than her proportionate share based not only on Indiana's contribution to the Federal tax collectors, but also on her need.

One dam, at Cagle's Mill, is completed. The Mansfield Reservoir is nearing completion. Important plans are laid for the Salamonie, Mississinewa, and Huntington reservoirs. We are progressing on the Monroe Reservoir on Salt Creek, for which the State of Indiana will provide more than one-half of the funds. This is something of a pioneer project, in that it recognizes the low flow value of such an impoundment. This Nation is realizing that the conservation of water is as important, although in many cases not so urgent, as flood protection. The two can go together in sensible water resources planning.

Dredging, channel correction, navigational development, and irrigation are also essential to water planning, although not the subject of so much public interest.

It will be extremely interesting to examine the record of these hearings and review the various assessments of Indiana's water problems. I do not recall any hearing of this type conducted 10 years ago, but I know that if we had a similar record to compare with today's statements we would see clearly the remarkable progress of the last decade. Part of this is due to the energetic work of the Indiana Flood Control and Water Resources Commission, a continuing body of some of our best informed and most devoted citizens. The recommendations of the commission are accorded great respect by State and Federal agencies—even those bodies who have the difficult task of deciding about appropriations of public money for such projects. The staff of the commission is alert to our water needs and problems, and tries to keep our planning ahead of the situations which develop.

We welcome this opportunity to lay before you the story of this great State and one of its important resources.

FEBRUARY 4, 1960.

Senator VANCE HARTKE,
Senate Office Building, Washington, D.C.:

I deeply regret that official duties will not allow my absence from Washington to attend the Indianapolis hearings conducted by the Senate Select Committee on National Water Resources tomorrow, February 5.

Your kind cooperation in introducing, in my absence, the Ninth District representatives appearing at the hearing will be personally appreciated.

My own testimony and that of the Jackson County, Ind., Flood Control Association is submitted for your presentation.

Thanks and regards.

EARL HOGAN,
Representative in Congress.

STATEMENT OF HON. EARL HOGAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. Chairman, I deeply appreciate the opportunity to testify before you and the members of the Senate Select Committee on National Water Resources and want to thank you, sir, and our own Senator Vance Hartke, for bringing this

hearing to Indiana where Ninth District residents might conveniently present their views on this all important subject.

The need for water conservation and flood prevention in Indiana, and particularly the Ninth Congressional District, has long been known. The proposition which I would lay before you at this time is that in considering means of future water conservation and resources for southern Indiana that serious thought is given to the immediate and vital need for flood control so that any recommendation you might bring back to Congress as a result of your committee studies and findings will be dual in nature.

An immediate need in southern Indiana is for control of the Whitewater River, particularly the East Fork. A reservoir at Brookville, Ind. (Franklin County), was an active authorized project under the 1938 Flood Control Act. The reservoir would control the runoff water from a drainage area of 335 square miles. The reservoir would be operated, as originally submitted, as a unit of a coordinate reservoir system for flood protection in the Whitewater and Ohio River Valleys. While the primary purpose of the project is in the interest of flood control, the reservoir area would also be developed for the beneficial use of agricultural lands, forests, fish and wildlife resources, and recreational activities.

Industry in this area is hard pressed. Residents have been moving away at a rapid rate. The area is anxious to have assistance with their problem of flood control and I believe your interest would be helpful in activating the project.

The White River and its tributaries, including the Muscatatuck and Sand Creek has been under study for some time. The President's budget carries an item for further study. Meanwhile, the residents of the East Fork of the White River area continue to suffer as floodwaters carry away good productive soil and leave behind the sand and silt. This water should be controlled in such a manner that the flow is orderly, giving relief from recurring flooding and promise of a source of water supply in an area which often suffers a deficiency of usable water. Again, industry is hesitant about locating in such an area and our residents are deprived the opportunity for growth.

Monroe Reservoir, now in the preconstruction phase, gives hope for holding back the waters of Salt Creek, to the north of the Ninth District. A speedup of construction of this reservoir is most desirable.

The CHAIRMAN. Thank you very much, for a clear, vigorous, and enlightening statement.

I would like for the good people here in Indiana to know the members of our staff whose work makes it possible for us to get our job done. First is the director of our staff, Ted Schad, who is on loan to us from the Library of Congress. Mr. Schad, would you present the other members of our staff who are here with you?

Mr. SCHAD. Thank you. First, we have our chief clerk, Paul McBride, standing over at the door. To handle our transportation, we have Lt. Col. Forrest Rettgers, of the General Staff of the Army, who is one of the Army's liaison officers with the Senate.

Senator Hart has made Muriel Ferris of his staff available to help the committee, and we are glad to have her here today.

Then Senator Hartke has made his staff available to help with making arrangements for this hearing. In fact it is really his hearing, and his people have done all the work in preparing for it. With us today we have Mr. Core and Mr. Colcord. Mr. Russo, on Senator Hartke's staff back in Washington also participated in making the arrangements.

The CHAIRMAN. Thank you very much, Mr. Schad. Our next witnesses will be Mr. Anton J. Hulman, chairman, and Robert Kellam, executive director of the Indiana Flood Control and Water Resources Board.

Senator HARTKE. I would like to say, off the record——

(Discussion off the record.)

The CHAIRMAN. We are glad to have you here, Mr. Hulman. In which of these various capacities do you appear?

I look out over this crowd and I can imagine people looking at him and seeing him in a different perspective.

You take me, I am in the oil industry and they look to me like a fine group of consumers of the products of oil.

It never occurred to me that one would be here and looking out at this audience and regard them as a fine group of consumers of—what was that—baking powder.

I know every thought in your mind, Tony.

Mr. HULMAN. Yes, that is right, Senator.

The CHAIRMAN. We are glad to have you here in any capacity in which you appear.

Mr. HULMAN. Thank you very kindly, Senator. It is a pleasure.

The CHAIRMAN. I might say, I think Senator Hartke, in looking out here one thinks to himself what a wonderful potential source of political help and power we have here. You know, and I know, they will understand that, even though the attitude might be shared from a slightly different viewpoint by your great Governor here.

Governor HANDLEY. I have a claim on him, too.

STATEMENT OF ANTON J. HULMAN, CHAIRMAN, INDIANA FLOOD CONTROL AND WATER RESOURCES BOARD, INDIANAPOLIS, IND.

Mr. HULMAN. Senator Kerr, Senator Hart, and our own Senator Hartke, it certainly is a great privilege to have you gentlemen from the Select Committee on Water Resources come out to our State of Indiana that Governor Handley and Senator Hartke spoke about, that we think is one of the great spots here in the Middle West.

Some 15 years ago in Indiana, we, on account of flooding, saw the need of some commission that could try to formulate here in Indiana a master plan for covering all of the watersheds on the waterfall, and so forth, and to help guide different projects along by improving their design and so forth.

We have been in operation now for 15 years as a State agency here in Indiana, and I believe you have had a fairly good report from the Government on our findings. I also have with me a person whom you introduced or called when you called me. That is Bob Kellum, who is the secretary of the Indiana Flood Control and Water Resources Commission. I think that he would like to give you just a brief statement if that would be possible.

The CHAIRMAN. Very good, sir. We will be glad to have it.

We are mighty happy to have you here.

When did you say that your big race is on?

Mr. HULMAN. It is May 30, Senator, and we would certainly be very, very happy and proud if you and Senator Hart could come along with Senator Hartke here to the races this year.

The CHAIRMAN. That is wonderful.

Is that one of your commercial enterprises?

Mr. HULMAN. It is probably about the largest semicivic enterprise that I think there is in the country today, Senator.

The CHAIRMAN. That is wonderful.

Out on the ranch I have in eastern Oklahoma, I have a sign which I hope would not be applicable to the one you have spoken of. It says:

This is a nonprofit organization. It was not aimed to be.

Mr. HULMAN. Yes.

The CHAIRMAN. Thank you very much, Mr. Hulman.

You say Mr. Kellum is here?

Mr. HULMAN. Yes, sir.

The CHAIRMAN. Come around, Mr. Kellum.

I believe, Mr. Kellum, you honored us by being at Detroit.

Mr. KELLUM. Yes; I was, Senator.

The CHAIRMAN. We are glad to see you again.

STATEMENT OF ROBERT KELLUM, EXECUTIVE DIRECTOR, INDIANA FLOOD CONTROL AND WATER RESOURCES BOARD, INDIANAPOLIS, IND.

Mr. KELLUM. It seems to me that the hearing at Detroit was certainly very valuable and covered quite a few subjects on the water resources, as well as the problem as a whole.

Senator Hart and you certainly had quite a bit of information from that hearing.

Senator Hartke, Mr. Chairman, and Senator Hart, I would like to expand, if I may just a minute, in general.

You have our statement from Indiana?

The CHAIRMAN. Yes, sir.

Mr. KELLUM. That is from the Governor, and I would like to put in for the record that Mr. Hulman and several other members of the Indiana Flood Control and Water Resources Commission have been members since the organization and founding of the commission in 1945 by the general assembly.

It shows, to me, the steady support of men of that caliber for this work, and we feel, of course, that it was only from the support of such men as that that we could have brought along, we think, quite a few of the projects and plans that have been developed in Indiana.

I would like to get into a few generalities, if I may, Senator.

The CHAIRMAN. Yes, sir.

Mr. KELLUM. We got from your committee the idea that you were asking for comment from the local and State people, and in that regard I would like to take that at full value and I would like to suggest as a background of thinking that there is a tremendous need for a continuation of your committee.

If we may point out the thinking that has come along, there has been a development of interest, a development of understanding of the water resources problem of the country, especially in this area, to equal almost the interests of the West. Of course the West always has had paramount interest in water, as you well know.

President Truman's committee did an outstanding job. The committee report was filed and that was about it.

The Hoover Commission did another excellent job of summarizing the resources, and making recommendations.

We feel that your committee has more of an opportunity and is better organized to bring accomplishments than anything that has

come along in the water resources field. We are just saying that as a flat statement of fact, in our opinion.

We feel that a Senate committee of this kind should have a broad background, but at the same time it should try to bring along points which are clear cut and get them enacted by congressional law. We refer especially to the point on the States having a paramount responsibility in water rights.

We have tried to bring along in Indiana a master plan for watersheds. That is very slow. We could not wait until we got a complete master plan. You never get anything done if you do that. But we have picked out projects which we regarded as the keys to leading——

The CHAIRMAN. In any master plan.

Mr. KELLUM. How is that?

The CHAIRMAN. They would be key projects in any master plan that might be developed.

Mr. KELLUM. Yes, sir; that is true.

In that connection, we believe that the Senate committee while it has a definite deadline date—incidentally that is the same procedure that we used in our Indiana water studies committee. We did not want to get any impression that it was in any way an administrative body. It is a recommendatory body.

But we do feel that by continuation of your committee with another deadline date, there would be opportunities for sifting out and continuing to clarify these problems.

We feel that water resources being a resource of movement, there will never be a final plan. There will always be new problems, as your committee recognizes.

In that regard, also, there is this other question of possible reservoir sites in this area. I would like to point out and submit a statement that has been prepared by Mr. Joseph Perrey, who is chief engineer of our commission, in which one point is stressed; that the need for the safeguarding of future reservoir sites has not been given as full consideration as it might. We refer especially to the interstate highway program. We feel that there should be a total resource approach to some of these problems and that there should be more interrelationship between their departments.

The Federal highway program, working with the States, sometimes in a more concentrated area, may affect a future reservoir site, and we would like to see consideration given and mention given in some way to the protection of that site for its ultimate use.

We are trying to develop what we call in Indiana the maximum-use principle for water resources, and in that meaning that every possible use of a watershed in the valley should be considered.

So those are two of the points that we would like to leave with you.

We are very strongly in favor of the compact principle. We do believe that the Great Lakes Commission is making some progress. Of course you well know the value of the Ohio Valley Sanitation Compact.

There are, of course, as you know, any number of other things that can be mentioned, but I did want to leave that as a suggestion that these points of greatest need might well be selected and proposed to the Congress.

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We certainly appreciate your being here. Thank you very much.

The CHAIRMAN. Thank you very much, Mr. Kellum.

Your statement is quite significant, when it reminds this committee, and it is a matter that should be made crystal clear in this committee's report, that the environment of tomorrow, if today's plans are successful, will be of such greater proportions and specifications that new concepts will be necessary to recognize both the requirements for tomorrow and the needs then for the future.

And I am glad you made the statement you did.

(The letter from J. I. Perrey follows:)

STATE OF INDIANA,
FLOOD CONTROL AND WATER RESOURCES COMMISSION,
Indianapolis, Ind., February 4, 1960.

Hon. Senator ROBERT S. KERR,
Chairman, Senate Select Committee on National Water Resources,
Senate Office Building, Washington, D.C.

DEAR SENATOR KERR: The State of Indiana submitted a statement to your committee at a public hearing held in Detroit, Mich., on October 29, 1959. That statement included estimates of present water use in Indiana and estimated future requirements, outlined problems confronting the State and Nation, and recommended actions to improve State-Federal relationships and to more adequately provide for future water needs.

This supplementary statement is intended to amplify some points that should be considered by the Congress in establishing future water policy.

Most studies of water use in Indiana indicate that water needs will double in the next 20 years and possibly double again in the 20 years following that. This picture is also typical of the national situation.

Many new water projects will have to be developed in the years ahead to meet these staggering water requirements. Much of this development will be of primary benefit to local communities or to areas entirely within one State. Consequently the responsibility for planning, development and financing should be concentrated at the local and State levels. However, some local projects will compete with Federal projects for reservoir sites and some will involve conflicts in purpose and operation. Consequently, Federal and State water policies must provide for partnership in the planning, construction, and financing of projects where there are joint or overlapping interests. This partnership arrangement should also be extended to the related fields of basic data collection, research, and recreation.

The provision of adequate water supplies for the future will be accomplished principally through the management of the seasonal distribution of water. This will require the collection and storage of water during periods of excess runoff and later release through pipelines to users or into streams to increase the flow for downstream municipal and industrial requirements and pollution control.

The storage of water in any substantial degree will have to be accomplished by the use of surface storage reservoirs created by placing dams across natural stream valleys.

Some modification of ground water supplies may be possible through the use of induced infiltration methods, but such methods are likely to be more limited in application than the use of surface storage.

Water is a replenishable resource. Generally, it can be depended upon to be supplied by runoff from precipitation which varies annually between somewhat widely separated limits. In any case, we can expect runoff to occur in the future in amounts comparable to what has occurred in the past.

Reservoir sites, on the other hand, are limited in number and are dependent largely upon fixed topographic features. The availability of reservoir sites and the need for reservoir storage varies greatly from area to area. In some areas a critical shortage exists now; in other areas sites are likely to be available for many years in the future. In any case, when favorable natural reservoir sites are used up the creation of artificial reservoirs will become a very expensive operation.

When one considers that an adequate future water supply depends largely upon adequate surface storage facilities and that favorable reservoir sites are

quite limited, it is clear that reservoir sites automatically become a most important resource.

It is extremely important, therefore, that all reasonably suitable reservoir sites be located as soon as possible, their potential capacities determined and studies made of possible future need for their use. This should be a responsibility of each State, but Federal policies relating to Public Law 566, Reclamation service and Corps of Engineers' programs must be considered. Here again a high degree of cooperation and possibly partnership effort will be necessary.

Whenever a resorvoir site is found to be suitable for development and needed to meet future water needs, steps should be taken to preserve it until its use is required. It should be protected against improvements being located within the reservoir area that will make its future development impracticable or so prohibitively costly that it will not be economically feasible. Housing developments and new highways are two of the most prevalent types of improvements that are detracting values from reservoir sites.

The Federal interstate highway program, as presently being administered, has no policy that provides for the protection of reservoir sites. The Bureau of Public Roads has held that the additional cost of adjusting a normal highway in a proposed reservoir area to provide proper reservoir clearance must be borne by parties other than the highway program. Such sharing of costs is not always possible because the reservoir projects are not fully developed and financed. Federal policy should permit highway adjustment to reservoir requirements, particularly where reservoirs are in an advanced stage of investigation or planning and where contruction is anticipated in a few years.

As the demand for enlarged and dependable water supplies gains importance, it may be necessary to change the priorities of purpose or use of existing reservoirs. For example, water supply or low flow regulation may become of more importance than flood control. These possible changes in emphasis should be given consideration in the present planning of reservoirs so that the maximum potential of reservoir sites may be developed. Federal policy should provide opportunities for State and local units of government to cooperate in Federal projects and to purchase features desired by local interests in developing projects to the maximum feasible extent. Federal policy also should permit the Federal Government to participate financially in State and local projects in order to include features that cannot be provided locally and thus permit maximum site development.

The change in emphasis from flood control to water supply and recreation can be aided greatly by increased regulation of the use of flood plains. Our experience up to now has indicated that new flood damageable improvements have been growing on the flood plains of the country faster than flood control and flood protection can be provided. Federal policy should provide incentives for increased use of flood plain zoning and other flood plain regulations. Otherwise, the national flood control program will continue to be a losing economic battle.

Our planning for future water resources development will be based largely upon projections of our past experience into the future. The accuracy of such projections will depend to a considerable extent upon the availability and reliability of records of past water occurrence and usage.

The more intensely we study our water problems the more apparent is the need for additional basic data. Long term records of precipitation, evaporation, streamflow, and ground water are essential in determining reliable yields of watersheds. They are also essential for indicating the effects of manmade changes in natural conditions. We will need to continue these records into the future in order to provide for the orderly regulation and control of water and to indicate the effects of new works.

One of the pressing needs in hydrologic data is a greater density in the network of precipitation stations. The determination of solutions to many hydrologic problems is handicapped by the lack of adequate precipitation data. The need in this regard varies from area to area and State to State. Therefore, an adequate program for gathering data should permit the U.S. Weather Bureau to cooperate with the States in providing additional precipitation and evaporation stations where needed. Such cooperative programs could be on a matching fund basis similar to other basic data collection programs.

Anticipated future critical water shortages point to the need for research in methods for improving water quality, in pollution control, and in new techniques in hydrologic analysis and water management. Such programs are of interest to many States. Federal policy should provide for cooperation with State and

local groups in research work as well as expansion of Federal activity in this field.

Recreation is a popular and growing use of water development projects. It should be recognized as a benefit to be obtained from many projects and should be evaluated for a proportionate share of project cost. However, in evaluating recreation benefits, a reasonable and sound method should be used, and it should be equitable in comparison with methods for evaluating other project uses. In addition, care should be taken that proper priorities are established in purposes for reservoir projects so that recreation will not hinder or obstruct the use of the reservoir for other important purposes.

In summary, there is a great need to locate reservoir sites for future use; reservoir sites should be protected against usurpation by other expensive improvements; reservoir sites should be developed to their maximum potential; basic data programs must be continued and expanded; research should be encouraged; and recreation should be recognized as a benefit derived from water resources development projects. All these activities should be coordinated with and carried out in cooperation with State and local governments, including joint financial cooperation, where there are joint interests.

Very truly yours,

J. I. PERREY, *Chief Engineer.*

The CHAIRMAN. Mr. E. Kenneth Marlin, director, State department of conservation, Indianapolis, Ind.

Mr. Marlin?

STATEMENT OF CHARLES BECHERT, DIRECTOR, DIVISION OF WATER RESOURCES, STATE DEPARTMENT OF CONSERVATION, INDIANAPOLIS, IND., FOR KENNETH MARLIN, DIRECTOR

Mr. BECHERT. Senator Kerr, I am presenting a statement in behalf of Colonel Marlin for the conservation department.

Charles Bechert is my name. I am director of the division of water resources in the conservation department.

The CHAIRMAN. Thank you very much, Mr. Bechert.

If you would give that to the clerk right there at your left, it will be made a part of the record.

(The statement referred to follows:)

STATE OF INDIANA,
DEPARTMENT OF CONSERVATION,
Indianapolis, February 5, 1960.

Senator ROBERT S. KERR,
Chairman, U.S. Senate,
Select Committee on National Water Resources.

GENTLEMEN: At the hearing in Detroit on October 29, 1959, the department of conservation presented a brief statement on certain aspects of the Nation's water problems not specifically mentioned in Gov. Harold W. Handley's statement submitted at that time expressing Indiana's views on this important matter.

We wish to submit the additional statement enclosed herewith reaffirming the recommendations made at the Detroit hearing and to further elaborate on one or two items of particular interest to the department.

Please accept our thanks for giving us an opportunity of expressing our thoughts on what is needed to properly develop this vital resource.

Sincerely yours,

KENNETH MARLIN,
Director, Indiana Department of Conservation.

STATEMENT OF INDIANA DEPARTMENT OF CONSERVATION

At the hearing which was held in Detroit on October 29, 1959, a statement by Gov. Harold W. Handley expressing Indiana's views and recommendations

relative to local, State, and National water problems was transmitted to the committee. At that time a supplemental statement was presented by the Indiana Department of Conservation with regard to the department's view on specific matters not covered in the Governor's statement and in which the department is particularly interested.

It is the purpose of this statement to reaffirm the recommendations made at the time of the Detroit hearing and to further elaborate on some of the views of the department of conservation regarding the future planning and development of the Nation's water resources.

As previously stated, the matter of recreational, fish, and wildlife benefits have heretofore been given only secondary consideration in multipurpose water projects and the economic benefits have not been included in determining the cost-benefit ratio of the improvement. The department feels that these benefits are equally as important as other benefits and therefore should be given full consideration and fully evaluated in determining the feasibility of future water resource developments.

At the Interstate Conference on Water Problems held in Chicago on January 28, 29, 30, a resolution was passed which reads as follows:

"Whereas certain types of recreational facilities serve a nationwide clientele; and

"Whereas there is a growing need for recreational facilities and for the enhancement of the Nation's fish and wildlife resources because of changing economic and social conditions; and

"Whereas such facilities as are now provided in many multiple-purpose projects are considered only on an incidental basis: Now, therefore, be it

"*Resolved*, That the Interstate Conference on Water Problems urges that in future multipurpose Federal water projects provisions for the enhancement of fish and wildlife benefits and recreation be evaluated and included as an integral part of such projects to the maximum feasible extent consistent with sound economic evaluation."

The department hereby endorses this resolution in particular as well as others passed by the interstate conference.

Another resolution passed by the same conference in which the department is especially interested is one urging a continuing program of water pollution control. Considerable progress has been made in the last decade to clean up the Nation's rivers and streams, but much remains to be done. Clean waters are an absolute necessity if the challenge of providing water to meet the future needs of the Nation is to be met.

The relationship between sound forestry programs and water resources development is often not given proper consideration. Greater effort should be made to coordinate the management and development of our forest lands with Federal, State, and local water resource projects. One effective means to accomplish this is through the small watershed program. This program should be strengthened and expanded as much as the economy will permit.

Essential to the sound development of the Nation's water resources is a knowledge of the occurrence, distribution, and behavior of this resource. Much has been done in the collection of fundamental basic, geologic, climatologic and hydrologic data needed in planning water projects, but the importance of this phase cannot be over estimated. An expansion of both the water resources and topographic mapping programs of the U.S. Geological Survey is necessary if the optimum use is to be obtained from this country's water resources.

Mr. BECHERT. May I speak briefly on it?

The CHAIRMAN. Yes, sir.

Mr. BECHERT. Senator Kerr, Senator Hart, Senator Hartke, members of the staff, ladies and gentlemen.

I appeared at the hearings in Detroit in October on behalf of the conservation department at which time I presented a brief statement regarding some of the views and recommendations in which the conservation department was specifically interested and which were not mentioned in great detail in Governor Handley's paper.

The department feels that recreation, fish and wildlife benefits have not been given their proper consideration in the planning and develop-

ment of Federal multiple-purpose water projects. We feel that these benefits should be evaluated and given their proper recognition in future planning of these projects.

Last week I attended an Interstate Conference on Water Problems in Chicago, at which time a resolution was adopted urging that Congress give consideration to including fish and wildlife benefits in future water resource developments. And the department fully subscribes to that and supports that resolution.

At the moment we do not have any specific recommendations as to how these benefits should be evaluated, but I want to call your attention to a Commission, of which no doubt you are familiar, the Outdoor Recreation Resources Review Commission.

It is my understanding that this Commission has been working on this problem for some time, and we feel that it is quite capable of determining a method by which recreation, fish and wildlife benefits can be evaluated, and we feel that once they are evaluated, they should be included in consideration of the cost benefits of any multipurpose project.

The conservation department is also vitally interested in the acceleration of the programs of the USGS in collecting basic geologic, hydrologic, climatologic data needed in the planning and development of our Nation's resources.

They have been doing excellent work, but we feel that there is need to accelerate this program because without this basic data and information, projects cannot be planned and designed for full utilization of the resources. We do recommend that both the water resources program and the topographic programs of the Federal Government be expanded.

That concludes my statement, gentlemen, and I wish to thank you for the opportunity of appearing at this time.

Senator HARTKE. Mr. Bechert, I would like to say one thing just for the benefit of the record.

I hope, too, and I share with you this feeling that greater consideration will be given to the so-called noncommercial aspect of the water problem, because I know that to many of us that we see things like the duck preserve down in the southern part, down in Posey County, which is a tremendous thing, and it can be destroyed with people not realizing the full value of conservation aspects, not just natural resources, but of things which involve wildlife and things of that sort, and geological formation. I think it is a very important thing, and we hope we do not overlook that when we start building flood control and navigation and get rid of pollution and all these things.

I think it is a very commendable step, and I think you are doing a fine job.

Mr. BECHERT. Thank you, Senator.

The CHAIRMAN. Thank you, Mr. Bechert.

I was interested in your statement about determining the economic value of the recreation features of multiple-purpose projects.

Did you say that you attended a meeting of the Commission that had that subject as one of the matters of its studies?

Mr. BECHERT. I did not attend the meeting, but our director of State parks did attend it, and he informed me that they had spent considerable time discussing that very problem.

The CHAIRMAN. Do you know if they issued any statement or resolution for compilation of policy for outlining of opinion of the specifics of those economic values?

Mr. BECHERT. Now my understanding is that they have not completed their study and have not presented any statement to date.

The CHAIRMAN. I would say this—the committee would be very glad to have either from you or Mr. Marlin, personally, or through you, the statement of any other responsible official that is in authority and has made a study of this, setting forth the specifics of what you think the economics of the recreational values are.

Mr. BECHERT. We shall be glad to do that.

We will also be glad to work with the Commission and your committee, or any other Federal committees or agencies, on the problem because we are very much interested in it and we will be glad to furnish whatever assistance we can.

(Subsequent to the closing of the hearing, the following information was received:)

STATE OF INDIANA,
DEPARTMENT OF CONSERVATION,
Indianapolis, April 8, 1960.

Mr. THEODORE M. SCHAD,
Staff Director, Senate Select Committee,
U.S. Senate, Washington, D.C.

DEAR MR. SCHAD: In reply to your letter of March 28, I wish to advise you that we are not prepared to submit a statement setting forth a formula or method to be used in evaluating recreational benefits which might accrue from multipurpose water resource projects. While we have given some attention to this problem since the time of your hearing in Indianapolis, we have not given it sufficient study to make specific recommendations. We have concluded that there is no simple solution to the problem, and if a satisfactory answer is to be had, it will require the combined efforts of many who are engaged in the recreational field. We do feel however, that if anyone is qualified to suggest how recreational benefits should be evaluated, it would be the Outdoor Recreation Resources Review Commission.

Kenneth Cougill, director of our division of State parks is a member of the commission and he informed me that the commission has had this matter under consideration for some time and have given it considerable study. Francis Sargent is executive secretary and his address is Seventh and D Streets SW., Washington, D.C., in the event you may wish to contact him.

Very truly yours,

CHARLES H. BECHERT,
Director, Division of Water Resources.

The CHAIRMAN. Thank you very much, Mr. Bechert.

Mr. BECHERT. Thank you.

The CHAIRMAN. Are there any questions?

Mr. O. F. Heslar, Chairman of the Great Lakes Commission of Indiana.

STATEMENT OF O. F. HESLAR, CHAIRMAN, GREAT LAKES COMMISSION OF INDIANA, INDIANAPOLIS, IND.

Mr. HESLAR. I have a statement here, which I would like to file and comment briefly on, for the reason most of this has been hashed over by the Governor and by the other people who have spoken here.

The CHAIRMAN. Thank you.

We appreciate that.

(The prepared statement referred to follows:)

STATEMENT BY CAPT. O. F. HESLAR (USN RET.), CHAIRMAN OF THE GREAT LAKES COMMISSION OF INDIANA

Chairman Kerr and members of the Senate select committee: This statement is being made by the Great Lakes Commission of Indiana and is not from the Great Lakes Commission in its full membership. I am representing only the Indiana members as their chairman. (The full commission membership now includes Minnesota, Wisconsin, Illinois, Michigan, Indiana, and Pennsylvania.)

The opportunity to appear before you is appreciated because Indiana has such a large stake in the Great Lakes and their future uses. While the shoreline of Indiana on Lake Michigan is relatively small, it holds the most concentrated industrial facilities on the entire Great Lakes frontage. In fact, the Lake Michigan-Calumet area of Indiana is one of the mightiest steel producing centers in the world. This area should be developed to its maximum capacity for steel and general manufacturing facilities and also with modern deepwater harbor facilities and operations. It is vital to the defense of the United States. We are going to need plenty of steel for a long time to come. The St. Lawrence Seaway, in its first season, has demonstrated what lies ahead in foreign shipments.

With that as a background of thinking, the Great Lakes Commission of Indiana believes that one of the most far-reaching services that can be provided by the Senate select committee would be the obtaining from Congress of improved methods for handling problems of international nature on the Great Lakes. Canada paid a much bigger amount than the United States in building the Seaway. Canadian interests are extensive on the lakes.

The need for cooperation between the Great Lakes States, the U.S. Department of State, other Federal departments, and the Provinces and Government of Canada has been intensified by the opening of the Seaway. Careful guidance of studies to meet this new condition, as well as the problems of much longer history, is recognized as essential.

Interests of the States and Provinces, the Federal and Dominion Governments, all are involved. Permission for the States, through the Great Lakes Commission, to confer directly with official representatives of the Provinces on some matters and to conduct surveys—with final clearance of decisions resting in the Federal and Dominion Governments—might be one step toward more modern handling of problems on the lakes.

As another example, we wish to point to the difficulties created over diversion of waters from the Great Lakes. Canada has an interest in this, by having control of the main watersheds of the lakes. Members of the Great Lakes Commission of Indiana recently submitted a statement to the Great Lakes Commission in its entirety on the diversion issue. I believe your Senate select committee will find it of interest as a possible new approach for future consideration and therefore present it to you as follows:

"On the Chicago diversion case, Indiana members of the Great Lakes Commission make the following statement, as a clarification of Indiana's position as the only neutral Great Lakes State on this issue:

"Recent statements by interests outside the State of Indiana have placed Indiana on one side or the other in the controversy over diversion of Lake Michigan water by the city of Chicago. Indiana is on neither side. The State has taken no position for or against the added diversion, as sought by Chicago and Illinois and opposed by the States of Minnesota, Wisconsin, Michigan, Ohio, Pennsylvania, and New York.

"There is no expectation at this time that the Indiana position will be changed. The State is not a participant in the Chicago diversion case.

"Indiana holds to the belief that determination of the volume of flow which may be made into the Sanitary and Ship Canal at Chicago from Lake Michigan, is an administrative problem, not a judicial problem. But, nonetheless, such problems must be solved satisfactorily in order to prevent economic stagnation of the vast industrial areas surrounding the Great Lakes.

"Indiana proposes that the Congress, with the consent of the President, designate the Corps of Engineers, U.S. Army, as the agency to administer releases from the Great Lakes, any or all of them, in accordance with best engineering practices, and with approvals to be made by a special Commission of United States and Canadian members annually or more frequently. U.S. members of this Commission would be appointed by the President, with consent of the Senate.

"A decree, handed down by the U.S. Supreme Court, lacks flexibility for adjustment to changing conditions of water levels on the Great Lakes.

"When the lake levels fluctuate by as much 4 feet, through natural causes in various years, a decree permitting a specific volume of diversion at all times, with the understanding that such diversion may affect lake levels by less than 1 inch in different locations, is impractical.

"Diversion of Great Lakes waters is not a localized Chicago problem. Pumpages or withdrawals from the lakes are a matter of record in every one of the States bordering the Great Lakes, as well as in the Canadian Provinces bordering these lakes. Comparisons of changing patterns of withdrawals and in-flows along the watersheds at the edges of the lakes never have been studied in detail to find all effects on lake levels. The withdrawals from the Great Lakes within watersheds whose streams flow into the lakes have been accepted on an academic rather than a functional basis. Indiana holds to the position that there are practical methods by which the lake levels of the Great Lakes may be regulated, within very reasonable limits, and that all attention should be directed toward obtaining valuable construction works of this kind—rather than to engage in disputes over any specific diversions.

"It is for these reasons that Indiana avoids participation in the *Chicago Diversion* case.

"The State stands ready to cooperate in providing factual assistance to the master, now appointed to the case by the U.S. Supreme Court, in whatever manner he may desire.

"Until such time when the Congress may act to make changes in procedures for seeking solutions to disputes over Great Lakes diversions, Indiana recognizes, of course, the responsibilities of the master and of the Supreme Court."

Mr. HESLAR. I will have to concentrate my knowledge and activity where the resources are and move to the Great Lakes Basin for a moment and to bring to you what Indiana has crystallized out of the meetings that she has had with the other States in connection with water diversion, pollution, lake levels, and so forth, of the Great Lakes.

Of course, we think first of water conservation and maintaining lake levels, and that immediately leads you to diversions and watersheds; and I would like to just emphasize this one point, and I will close with filing this paper that I have given which is short but brief and covers a good many things that have already been talked about.

It is probably the largest and most precious body of fresh water that we have in the world, and we enjoy it. But the impact of the St. Lawrence Seaway is going to bring about something that I think we should look forward to. That is the potential and possibilities of the particular operation of foreign ships and so forth in and out of the lakes. That is going to cause an increase in industrial operations throughout the local Great Lakes territory. It is going to mean a great number of ships coming and leaving the lakes.

We have a pollution problem in the lakes today because of the ships that are now occupying and running up and down the lakes. Probably a good deal of care is taken in how they may handle their pollution problems, but with the foreign ships coming in, they do not seem to care much about it and they have taken very few precautions, if any, in preventing pollution. They will not be consuming the water of the lake. So in a question of diversion that would have little to do. I just mentioned that as a pollution problem which is a very serious one.

As you have probably heard last week there were a few ships that came in the lakes, and it was a problem in a great many of our ports. That is going to go back into the question of your human needs and the people who may use the shores, either the lakes or water as a source of water supply for drinking purposes from the lakes.

The water diversion is something that I think is going to be of paramount importance insofar as your studies are concerned in maintaining that lake level.

The main diversion from the Great Lakes Basin is by the United States at the present time. Other than that, that goes in Niagara Falls for power purposes. Therefore, we reach down in the industrial areas for water diversion and water consumption.

The United States returns very little water from the United States into the Great Lakes Basin. Most of your watersheds in the Great Lakes station originate in Canada. And for this reason I think it would be very important if we could solidify or bring together the lower echelon of studies or of persons that might be responsible for studies that are made at the level of which we are talking about here today; maybe the State level and certain other levels that might project back into the interior beyond the Great Lakes Basin.

But in any event we cannot get together and cannot solve any of these problems unless we go to Canada, work with Canada. That is a long way around.

We are only a recommendatory body, but it is a long way around through the State Department and there are so many things that set us back, so we cannot get answers back and forth.

The States could set up a compact with Canada to negotiate and talk about water diversion and probably a change of watersheds for the increase of the watersheds from Canada into the lakes to help control the level. There are many things we could talk about and on which we could reach conclusions and we could make recommendations to the Canadian Government and our Government here where they would probably get together more quickly.

I would like to just point out within the next 10 or 15 years, you will probably feel the impact of the St. Lawrence Seaway to the extent it is going to present us with a problem in the Great Lakes Basin, and we should if possible set up something that would go along with that and treaties with Canada as the impact moved in on us.

I think that is all I have to say, gentleman.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Heslar, for a suggestion that is worthy of study not only of this committee but of the Congress. Thank you very much, Mr. Heslar.

Mr. HESLAR. Yes, sir.

The CHAIRMAN. Senator Hart?

Senator HART. Mr. Heslar—that is quite all right—I did not intend to ask you a question but make a comment, that you just made two points, and I think they are of value.

The first is as to this notion that we have in the United States and in the basin, particularly, that these Great Lakes are our lakes and that if we want to be silly in their use that is all right; that is our own foolishness. But they are not our lakes; they are lakes of both the United States and its Canadian neighbor. By and large the source water comes from them and not from us. It behooves us under those conditions not to use our muscles too often.

And secondly, is the point you brought up about the increased pollution that the very desirable seaway will bring us. I think this

is just like the opening of a new stretch of highway. If you do not zone it when it opens it will always be bad. The time to put the horse collar on the polluter is the time his flag first comes into the lake, and not try 5 years later, after practices are established, to do it. You certainly put us on warning. Thank you.

The CHAIRMAN. Thank you very much, Mr. Heslar.

Mr. B. A. Poole, chief engineer, State board of health, of Indianapolis, Ind.

STATEMENT OF B. A. POOLE, CHIEF ENGINEER, STATE BOARD OF HEALTH, INDIANAPOLIS, IND.

Mr. POOLE. Chairman Kerr, Senator Hart and Senator Hartke, I was not fortunate enough to attend the Detroit hearing, but I did participate in the assembling of a good deal of the data that was presented there, so what I have to say here today is just a reaffirmation and perhaps a little expansion on some of the material that has already been presented but which is of particular interest to me in the State board of health.

I believe that our public water supplies and sewage and waste treatment is the biggest water business that we have been in in the State of Indiana up to date. Our public service commission estimates a replacement value of more than $600 million for our public water systems, and we have records of about a quarter of a billion that has been spent on pollution abatement works by the cities and industries of Indiana. In the last drought which was in 1953 and 1954, one-sixth of all of our public water supplies experienced some supply deficiencies.

Now, a great many of that number have made corrections to date, but I am afraid that many of the corrections that have been made are just about adequate to take them up to the next drought cycle.

We have about 25 cities that are operating sewage treatment plants on the headwaters on some of our streams, and these are modern complete sewage treatment plants, and they are in a touch-and-go situation right at the moment in the maintenance of satisfactory stream conditions because of inadequate dilution water.

If you visualize the day when this sewage flow doubles, and we think our water consumption and our sewage flow will double by 1980, certainly, then unless we have some low flow augmentation or unless we have a higher grade of sewage treatment than we know today, I am afraid we are going to experience some undesirable stream conditions in a good many of the areas of Indiana.

Now, we feel that every——

Senator HARTKE. Let me interrupt you a minute, Mr. Poole.

I am glad to see you here, first.

When you talk about undesirable stream conditions, what you are talking about plainly is that the people are in trouble.

Mr. POOLE. I think they would be in trouble. The fish would be in trouble, certainly. And there would be damages to livestock watering.

Senator HARTKE. How about health?

Mr. POOLE. Possibly health implications.

The point I am trying to make, Senator Hartke, is as our sewage flow doubles and, with our present-day methods of sewage treatment,

if we do not have some more dilution water in some of these areas or if we do not find a higher grade of sewage treatment, then, say, 1975 or 1980 is the time when we can look to some of these unsatisfactory conditions.

In view of that, I would strongly urge on all the reservoir projects in Indiana that consideration be given to low-flow augmentation if it is practicable and feasible to include low-flow augmentation.

I think this is an area where Federal financing is certainly indicated for the simple reason that it is extremely difficult to allocate the benefits of low-flow augmentation as you go down the course of the stream, and I would hope to see the Water Supply Act of 1958 eventually amended to include low-flow augmentation as a nonreimbursable item.

In addition to that, and since I am sure that we have many areas not only in Indiana but throughout the Midwest where you cannot impound enough water to take care of this anticipated sewage need I have referred to, I think the Federal Government should embark on a greater research endeavor than it is now which is intended to find ways and means of a higher grade of sewage treatment than we have today.

In addition to that, we, like the conservation department and others, are interested in the expansion of basic data. We are interested in addition to the quantity data, namely, the gaging stations, into an expansion of the water quality data throughout the State.

We have only recently established a quality network of about 55 stations. The Federal Government has a few. The Ohio River Commission, which has been referred to earlier, has a few. I hope we can see the day when the entire country is blanketed with a network of water quality sampling stations that is comparable to our gaging stations for the measurement of streamflow.

While we are out here in the Midwest, and you would normally think that we have no interest in the removal of salt from water, we are watching with a good deal of interest the work that is going on in desalinization because there are a good many areas throughout southern Indiana that has a goodly supply of saline ground water but practically no supply of fresh ground water and if and when economical methods of salt removal are developed it could be of some assistance to some of our municipalities and some of our farmers.

I thank you very much.

(Prepared statement of Mr. Poole follows:)

STATEMENT BY B. A. POOLE, CHIEF ENGINEER, INDIANA STATE BOARD OF HEALTH, AND TECHNICAL SECRETARY, INDIANA STREAM POLLUTION CONTROL BOARD

Chairman Kerr and members of the Senate select committee, the State board of health and the stream pollution control board participated in the preparation of the data submitted by Gov. Harold W. Handley in the report which he transmitted to the committee on October 1, 1959. While reaffirming the statements of that report, it is desired to expand certain points of particular interest to our activities.

EXISTING SITUATION AND TRENDS IN INDIANA

The development of our water resources to provide municipal water supplies and the preservation of our water resources by waste water treatment is big business in Indiana. Our best estimates indicate that the public water supplies operating in Indiana carry a replacement value of $625 million. The actual

project cost of interceptor sewers and sewage treatment works constructed to date by municipalities to maintain water quality suitable for downstream uses totals $205 million. In addition, $37 million has been spent for waste treatment facilities by industries.

During the 1953–54 drought a sixth of our public water supplies showed deficiencies that actually curtailed the use of water or made such curtailment an imminent possibility. Most of the supplies affected at that time have taken steps to correct those deficiencies; however, very few have undertaken improvements on a large enough scale to absorb the increased demands that will be imposed by the time of the next dry cycle. The history of droughts in Indiana indicates that a dry period sufficient to affect surface supplies occurs every 10 or 15 years.

In the cycle of water use, the treatment of sewage and wastes prior to discharge of the effluent to receiving waters is of prime importance. The stream pollution control board requires that treatment be tailored to maintain satisfactory conditions in the receiving stream with due regard to downstream water uses. However, there are occasions during low flow periods when there is not sufficient water in the receiving stream to provide adequate dilution for the treated effluents from approximately 25 municipal sewage treatment plants. With the conventional methods of treatment in use today, it is anticipated that the need for dilution water will be even greater as the population shift to urban areas increases.

In the interest of preserving water quality, we do not consider supplementation of low streamflow as a substitute for complete treatment of sewage or waste effluents. Additional streamflow during dry periods will, however, serve to minimize the buildup of undesirable characteristics in the receiving waters (i.e., minerals, detergents, etc.) and assist in maintaining water quality suitable for reuse at downstream locations.

PROJECTIONS OF FUTURE DEMANDS

The increased demands for water in municipalities by 1980 must be met by expansion of existing facilities for both surface and ground supplies. The less strategically located ground water supplies may have to go several miles in order to reach productive aquifers.

Many of the smaller communities, and with few exceptions, all of the large cities will have to enlarge or develop new surface water sources.

The problem of waste water disposal will require municipalities, particularly the metropolitan areas, to extend sewer services outside their corporate limits to serve the fringe areas. This will demand larger, more efficient, and better operated municipal waste water treatment plants to provide the best possible treatment prior to discharge of the effluent to the receiving waters.

MEANS OF MEETING FUTURE DEMANDS

The development of multiple-purpose reservoirs appears as one of the most promising areas for increasing our usable water resources. Sites suitable for development of multiple-purpose reservoirs in Indiana are limited; therefore, available sites should be developed to insure their maximum beneficial use. Low flow augmentation should be considered along with water supply and flood control in all reservoir projects.

A method to provide a higher degree of treatment of sewage and wastes must be developed for use where the amount of dilution water is restricted. The increased usage of radioactive materials, the minute concentrations of organic and inorganic substances and other nonliving contaminants that find their way to our water courses point up the necessity for research and development of improved methods of sewage and waste treatment. The buildup of detergents in both ground and surface water sources is already causing concern to water users. The Federal Government's research activities in these fields should be expanded.

The rapid increase in industrial development has not been accompanied by an equal increase in research by industry to insure that its waste effluents will not damage the receiving waters. Industry's efforts in this field should be increased and coordinated with other research efforts.

As the demand for development of surface water sources increases, it is anticipated there will be a need for wider coverage of streamflow data on smaller streams. Basic chemical, physical, and bacteriological data for determination

of water quality will also be required. The collection and reporting of basic data in a uniform manner throughout the country would provide a baseline of water quality information for future water resource development.

Indiana initiated a water quality monitoring program in 1957. The attached report of Indiana water quality for 1958 lists the procedures and the results of analysis of our program. The data obtained to date has been used by consulting engineers, municipalities, and others in the development of water projects.

The domestic farm water supply is critical in much of the southern one-third of the State because potable ground water is ordinarily not available in adequate amounts. Adjacent States have similar problems.

The State board of health, in cooperation with Purdue University, has been working on the development of a safe, simple method for treating farm pond water to make it acceptable for human consumption. Development of an adequate supply of potable water for individual farms holds a promise for the expansion of our agricultural resources.

There is a considerable amount of salt water in the underground strata in the southern part of the State where potable supplies of ground water are scarce. The development of desalinization methods might make it practical to consider utilization of this source of supply.

The CHAIRMAN. Thank you, sir, very much.

You have touched on some of the most important matters that we have under consideration in this committee.

The Ohio Valley Improvement Association represented here by Mr. Harry Mack, its chairman, and Mr. William Hull.

STATEMENT OF HARRY M. MACK, CHAIRMAN, BOARD OF TRUSTEES, OHIO VALLEY IMPROVEMENT ASSOCIATION, CINCINNATI, OHIO

Mr. MACK. Mr. Chairman and members of your committee, my name is Harry Mack. I live in Cincinnati, Ohio, and I am chairman of the board of trustees of the Ohio Valley Improvement Association. This is a nonprofit corporation which is located in Cincinnati.

Senator HARTKE. I might ask you, was it intended to be so?

Mr. MACK. I can only say, Senator, that as far as I am concerned, with my income as chairman of the board of this association, I know from my own experience it is nonprofit.

But the association is broadly representative of industrial, commercial, financial, and civil interests throughout the entire Ohio Valley. It is dedicated to the economic, industrial, and social development of the Ohio Valley, particularly through more effective use of water resources, including modernization of navigation facilities, enlargement of domestic and industrial water supply, and provision for more adequate flood control.

I particularly am very grateful for the opportunity afforded by the distinguished select committee to present to you what we believe to be the urgent needs for the Ohio Valley and for accelerated development of its water resources.

During the postwar period, the Ohio River Valley has witnessed a phenomenal industrial expansion and economic growth. We have made a very detailed survey which was conducted by our association in 1957 and extended last year, and since January 1, 1950, it is almost unbelievable but our survey shows more than $15 billion has been invested in our valley.

The CHAIRMAN. In industrial plants?

Mr. MACK. In industrial plants, Senator, along the counties bordering the Ohio River and its tributaries.

We are confident, and I think it is self-evident, that low-cost water transportation afforded by the Ohio River and the abundant water supply that we have, coupled with the protection that we now have against the ravages of floods have constituted the principal basis for this remarkable industrial expansion. This huge flow of capital has greatly increased employment opportunities for the people of the valley and has contributed tremendously to their rapidly rising standard of living.

I am the third generation who has made his income and lived on the rivers. You can call me a riverman. And this industrial expansion has just been beyond belief in the Ohio Valley. I have an opportunity to fly down the river and many opportunities to make a trip by boat. There is just one plant after another for many miles.

As a result of this vast economic development, based upon the utilization of the water resources of this region for navigation and water supply, traffic on the Ohio River has undergone a rapid increase to levels far beyond the designed capacity of the navigation facilities which we now have and were completed in 1929.

We have reached a record of 8½ million tons in traffic in 1957.

The CHAIRMAN. Do you have an estimate for 1958 or 1959?

Mr. MACK. We have indications, Senator, but it is rather indefinite. We get those figures from the U.S. Corps of Engineers. I am not too sure how reliable they are.

The CHAIRMAN. There is no doubt in your mind but what it continued to increase.

Mr. MACK. I think I will comment on that a little later on where we think it is going.

The CHAIRMAN. All right.

Mr. MACK. The demands of course for increasing volumes of fresh water for domestic consumption and industrial and agricultural purposes are approaching the limits of present available supplies. In addition, as industry and population have expanded, the need for improved flood protection has become more urgent. Accordingly, our association, the Ohio Valley Improvement Association, gives its full support to the Corps of Engineers of the U.S. Army for development of the water resources of our valley, the Ohio Valley.

With your permission I should like first to discuss the Corps of Engineers' program for the modernization of the main stream of the Ohio River—that is the locks and dams. This program involves the replacement of what we presently have in the way of 46 locks and dams on the Ohio River. They are to be replaced with 19 modern structures and the provision of 1,200-foot locks associated with an auxiliary lock of 600 feet, which, when completed, would eliminate traffic delays, greatly reducing the time that it takes to lock through the dams and locks, and provide deeper and more stable pools for navigation.

Incidentally, I have taken the liberty of telling the members of your staff that we are submitting to your committee a statement by Marvin J. Barloon, who is professor of economics at Western Reserve University and is a consultant to our association. I think you will find it most interesting.

The CHAIRMAN. Very good.

That will be made part of our record.

Mr. MACK. Thank you, Senator.

(The statement referred to follows:)

STATEMENT OF MARVIN J. BARLOON, PROFESSOR OF ECONOMICS, WESTERN RESERVE UNIVERSITY, CONSULTANT TO THE OHIO VALLEY IMPROVEMENT ASSOCIATION

Mr. Chairman and members of the committee, my name is Marvin J. Barloon. I am professor of economics at Western Reserve University in Cleveland, Ohio, in charge of instruction in transportation and industrial development at that institution. For the past 5 years I have served as economic consultant to the Ohio Valley Improvement Association of Cincinnati, conducting analyses of economic growth in the Ohio Valley and the relationship of this growth to navigation on the Ohio River and its major tributaries. From these studies considerable evidence has emerged as to the vital importance of expedited progress in the Ohio River improvement program to the continued industrial and economic development of this region.

MAGNITUDE AND GROWTH OF OHIO RIVER TRAFFIC

The Ohio River is one of the major waterway traffic arteries of the Nation. Including its initiating tributaries, the Allegheny and Monongahela Rivers, it is over 1,000 miles long, the mainstream, alone, being 981 miles in length. The Ohio carries a higher tonnage of traffic per mile than any other long distance river or canal system in the United States, with the single exception of the lower Mississippi from St. Louis to the gulf, with which its traffic movements are closely integrated, and in the busier reaches of the Ohio the tonnage volume is approximately equal to that in the most heavily traveled reaches of the lower Mississippi. As a further indication of traffic density, in the busier reaches of the Ohio River, the tonnage moved is about equal to that which traversed the St. Lawrence Seaway in 1959. Cumulatively, over its entire length, the Ohio River carries about four times the 1959 seaway tonnage.

This waterway is now approaching a major traffic crisis which can be averted only by pressing to completion at the earliest feasible date the present program of improvement in the navigation system under the administration of the Corps of Engineers. The old system of locks and dams is becoming ever more inadequate for the mounting volume of freight trying to get through it.

Freight movement on the Ohio River has been growing for a very long time, and in persistently increasing amounts. During the decade of the Great Depression, it went up from about 1.5 billion ton-miles per year to nearly 4 billion. During World War II, it increased further to about 7 billion. Growth proceeded even more rapidly after the war. In 1958, in spite of the recession, it reached nearly 16 billion ton-miles.

Exhibit I presents the picture of mounting traffic volume from 1915 to 1958, inclusive. It will be noted that the calculated growth trend over the 43-year period amounts to 8.9 percent annually. With a growth rate sustained over so long a time, it does not appear unreasonable to project it 10 years beyond the 1958 level. Such a projection points to a reasonable expectation of 40.2 billion ton-miles of traffic on the Ohio River in 1968.

PROGRAM FOR REPLACEMENT OF OBSOLETE FACILITIES

The projected growth, however, will be choked off unless improvements in the navigation system now underway, are promptly brought to completion and unless projected improvements are initiated and carried through at maximum efficient rates. The old navigation facilities consisting of 46 locks and dams, completed as an integrated system in 1929, are badly outmoded. Pools are too short and lockages too frequent for current requirements. The average pool is only 21 miles long. In 1929, when the average length of haul on the river was only 69 miles, this feature was not a serious handicap. But, the length of haul is constantly increasing, and in 1958 it reached 215 miles, representing some 10 lockages for an average freight movement. Replacement of these 46 old structures with 19 new high-lift dams, as contemplated in the program of the Corps of Engineers, would correct this defect.

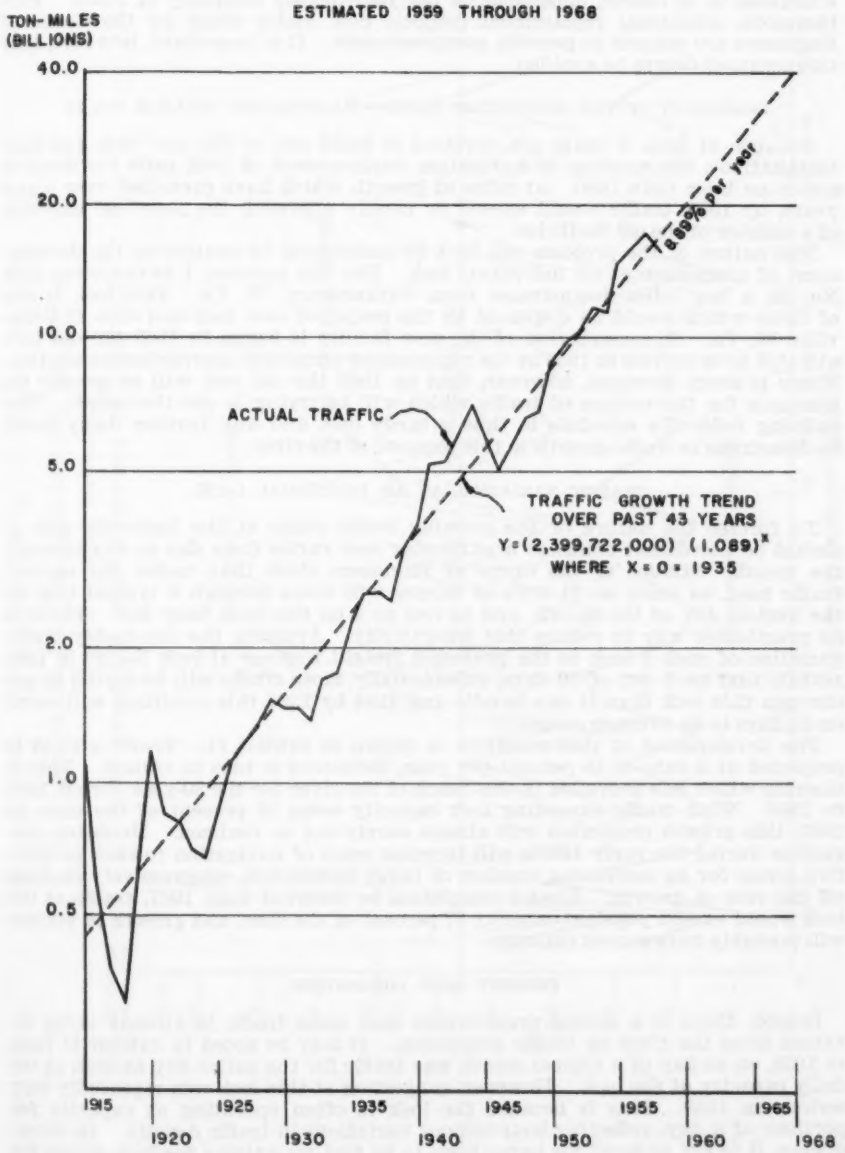
Furthermore, the existing lock chambers are only 600 feet long. Modern tows of barges often exceed 1,000 feet in length, necessitating the time-consuming and costly process of repeated double locking. Progress in the adoption of large tow units with its major attendant economies is thus impeded. The new lock chambers are to be 1,200 feet long.

Each of the present dams is equipped with only a single lock, necessitating a one-way movement of navigation. The new ones will have twin locks, the large

EXHIBIT I

GROWTH OF TRAFFIC ON OHIO RIVER

SHOWING IN TON-MILES WATERBORNE TRAFFIC
ACTUAL 1915 THROUGH 1958
ESTIMATED 1959 THROUGH 1968



SOURCE: CORPS OF ENGINEERS, U.S. ARMY.

main lock being supplemented with a 600-foot auxiliary. In all these respects the volume and form of modern traffic have evolved beyond the conceptions of the old system.

The improvement program is in constant jeopardy of delay and postponement. While six lock and dam replacement projects are now under construction with scheduled completion dates ranging from 1961 to 1964, the fulfillment of these schedules is, of course, dependent on the year-to-year adequacy of funds. Furthermore, additional replacement projects now under study by the Corps of Engineers are subject to possible postponements. It is important, however, that unwarranted delays be avoided.

IMMEDIACY OF THE CONGESTION CRISIS—ILLUSTRATION OF LOCK NO. 20

Because at least 5 years are required to build one of the new lock and dam installations, the meeting of navigation requirements of 1965 calls for decisive action no later than 1960. At rates of growth which have prevailed over many years, by 1965, traffic would exceed or closely approach the practical capacity of a number of the old facilities.

The nature of the problem can best be understood by examining the development of congestion at an individual lock. For this purpose, I have chosen lock No. 20, a few miles downstream from Parkersburg, W. Va. This lock is one of those which would be displaced by the projected new lock and dam at Belleville, W. Va. If construction of the new facility is begun in 1960 the old lock will still be in service in 1965 as the replacement structure approaches completion. There is every prospect, however, that by 1965 the old lock will be grossly inadequate for the volume of traffic which will be trying to get through it. The existing Belleville schedule is thus a tardy one, and any further delay could be disastrous to traffic growth in this segment of the river.

TRAFFIC VARIATION AT AN INDIVIDUAL LOCK

To foresee the nature of the growing traffic crisis at the Belleville site, it should be noted that traffic at a particular lock varies from day to day through the month. Studies of the Corps of Engineers show that, under the current traffic load, as many as 21 tows of barges will move through a typical lock on the busiest day of the month, and as few as 4 on the least busy day. There is no practicable way to reduce this irregularity. Applying the day-to-day traffic variation of such a lock to the projected freight tonnage at lock No. 20 in 1965 reveals that on 5 out of 30 days, substantially more traffic will be trying to get through this lock than it can handle and that by 1967 this condition will occur on 11 days in an average month.

The development of this condition is shown in exhibit II. Traffic growth is projected at a rate of 13 percent per year, measured in tons in transit. This is the rate which has prevailed in this reach of the river for the 30-year period, 1925 to 1955. With traffic exceeding lock capacity some 16 percent of the time by 1965, this growth projection will almost surely not be realized. Mounting congestion during the early 1960's will increase costs of navigation toward prohibitive levels for an increasing number of barge movements, progressively choking off the rate of growth. Should completion be deferred until 1967, traffic at the lock would exceed physical capacity 37 percent of the time, and growth in volume will probably have ceased entirely.

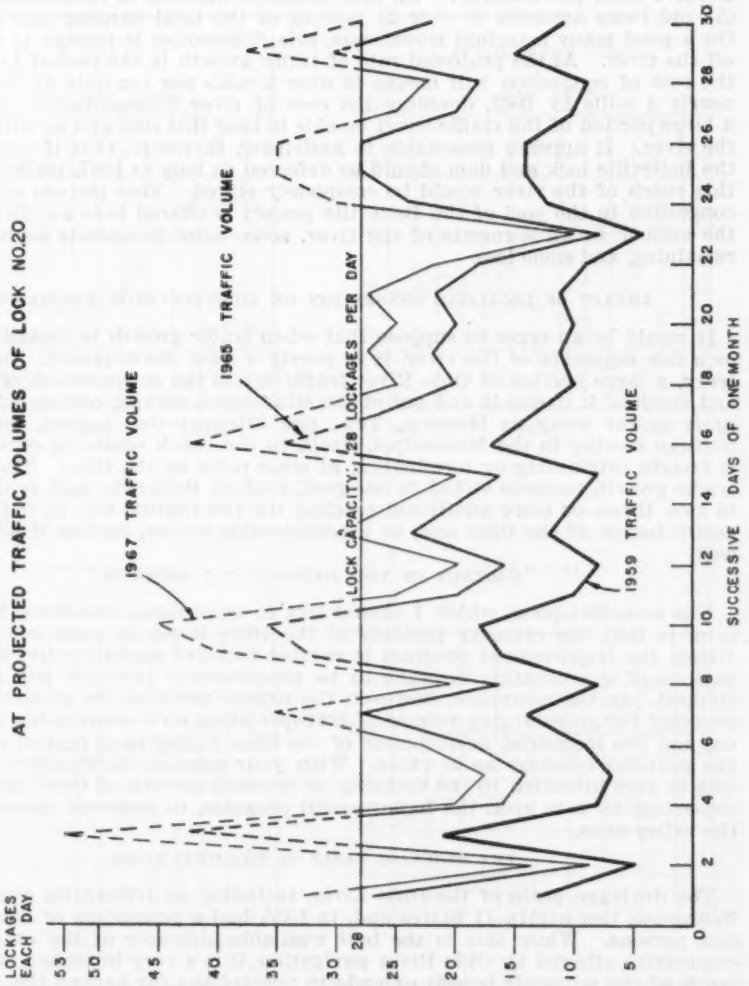
PRESENT LOCK CONGESTION

Indeed, there is a strong presumption that some traffic is already being diverted from the river by traffic congestion. It may be noted in exhibit II that, in 1959, on no day of a typical month was traffic for the entire day as high as the daily capacity of the lock. However, congestion at this lock was repeatedly very serious in 1959. This is because the lock is often operating at capacity for portions of a day, reflecting hour-to-hour variations in traffic density. In consequence, it is not unusual for barge tows to be tied up waiting for lock access for anywhere from 2 to 6 hours, even on days when the lock is not continuously at capacity through the entire 24-hour span. Thus, congestion costs deflect traffic from the river even when a lock is not operating at its daily capacity. On exhibit II the traffic patterns at lock No. 20 for 1965 and 1967 should read in this light. Congestion will be even more serious than the chart indicates.

EXHIBIT II

EXHIBIT II

DAY-TO-DAY TRAFFIC VARIATION FOR ONE MONTH
TYPICAL OHIO RIVER LOCK
AT PROJECTED TRAFFIC VOLUMES OF LOCK NO.20



COSTS OF CONGESTION

It costs from $50 to $100 an hour to hold a tow in waiting for lock access, an hourly average of about $75. In 1959, at Lock No. 20, I estimate, from studies of traffic patterns prepared by the Corps of Engineers, that the cost of waiting for lock access amounted to an average of 0.86 mill per ton-mile of freight transiting the 10.3-mile pool. Dr. Joseph R. Hartley of Indiana University states that a representative cost of carrying freight on the Ohio River runs at about 4 mills per ton-mile.[1] On this estimate, the cost of congestion at one of the old locks amounts to over 21 percent of the total barging cost right now. On a good many marginal movements, this differential is enough to keep them off the river. At the projected rate of traffic growth in the pool of Lock No. 20, the cost of congestion will mount to over 3 mills per ton-mile by 1965 and to nearly 4 mills by 1967, doubling the cost of river transportation. Obviously, a large portion of the traffic won't be able to bear this cost and so will be lost to the river. It appears reasonable to anticipate, therefore, that if completion of the Belleville lock and dam should be deferred as long as 1967, traffic growth in this reach of the river would be completely stifled. This picture of mounting congestion in the pool of the Belleville project is offered here as illustrative of the outlook in all segments of the river, some more immediate as to the time remaining, and some less.

IMPACT OF LOCALIZED CONGESTION ON LONG-DISTANCE NAVIGATION

It would be an error to suppose that when traffic growth is choked off in one or a few segments of the river, it is purely a local development. On the contrary, a large portion of Ohio River traffic moves the entire length of the river, and much of it moves in and out of the Mississippi, serving origins and destinations as far away as Houston, Tex., and Minneapolis. Indeed, most of the tonnage moving in the Mississippi, itself, in the reach centering on Cairo, Ill., is freight originating or terminating at some point on the Ohio. Therefore, as traffic growth becomes stifled in one pool, such as Belleville, and, progressively, in two, three, or more additional reaches, the retardation will be felt along the entire length of the Ohio and, to a considerable extent, on the Mississippi, as well.

URGENCY OF THE IMPROVEMENT PROGRAM

The essential point which I should like to emphasize, therefore, Mr. Chairman, is that the capacity problem of the Ohio River is upon us right now. Unless the improvement program is carried forward expeditiously, the growth pattern of a generation is going to be progressively retarded and eventually stopped. In the meantime, however, the urgent needs of the growing national economy for an enlarging volume of transportation service are going to go right on, and the industrial development of the Ohio Valley is of central concern to the national economy as a whole. With your permission, therefore, I should like to give attention to the meaning of renewed growth of Ohio River traffic, dependent as it is upon the improvement program, to economic development of the valley area.

THE DRAINAGE BASIN OF THE OHIO RIVER

The drainage basin of the Ohio River, including all tributaries excepting the Tennessee, lies within 11 States and, in 1956, had a population of about 19 million persons. While this is the best available indicator of the extent of the community affected by Ohio River navigation, it is a very imperfect one because much of the economic benefit extends to populations far beyond the confines of the basin, and some localities within the basin are less directly affected than others outside. A number of large urban centers, however, are right on the banks of the river and its navigable tributaries. These include metropolitan Pittsburgh, Cincinnati, Louisville, Nashville, Charleston, W. Va., and Evansville, Ind., in addition to numerous other important industrial cities.

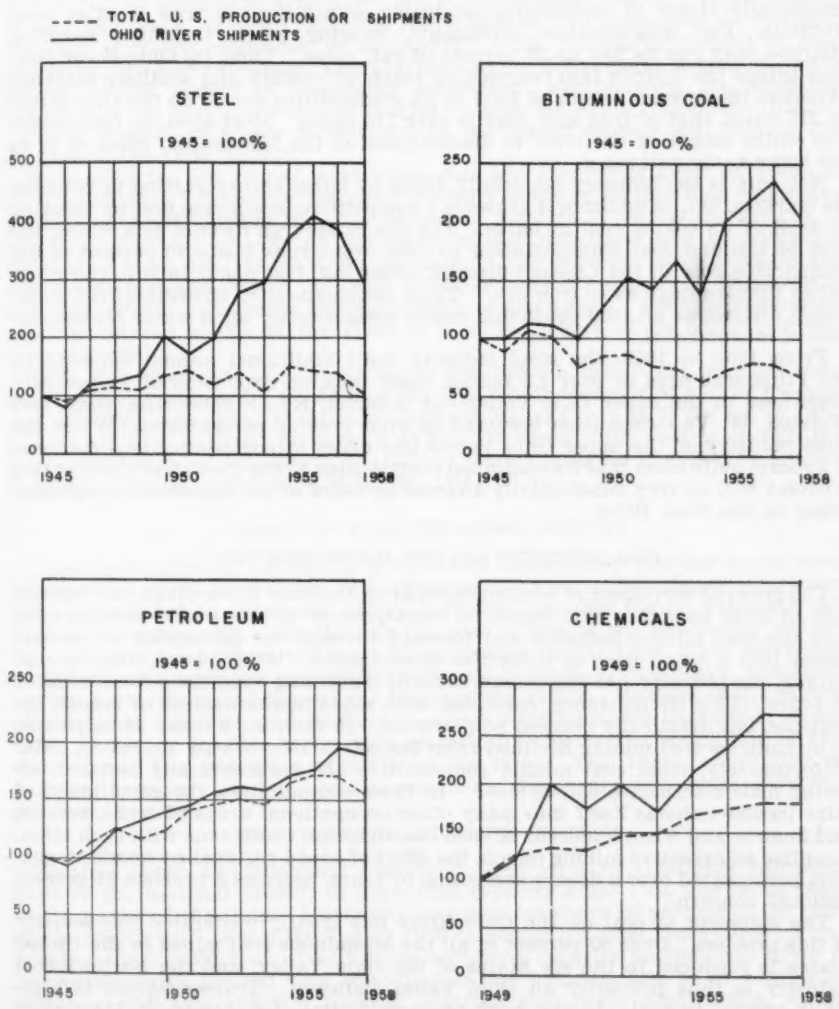
GROWTH IN CARRIAGE OF MAJOR COMMODITIES

The stimulus of river transportation to economic growth is indicated by the volume of barging of certain key commodities in the postwar era. Exhibit III shows the growth in tonnages carried of four commodity groups compared with

[1] Joseph R. Hartley, "The Economic Effects of Ohio River Navigation," School of Business, Indiana University, Bloomington, Ind., 1959, pp. 43 and 44.

EXHIBIT III

GROWTH COMPARISON OF
SHIPMENTS ON THE OHIO RIVER vs TOTAL U. S. PRODUCTION
FOR FOUR KEY MATERIALS



growth in the Nation's production. It will be noted that in the recession year of 1958, while the tonnage of steel produced throughout the country was little above the level of 1945, the tonnage shipped on the Ohio River was 300 percent of the earlier year; that while the Nation's coal production had declined about 30 percent the quantity shipped on the Ohio had doubled; that petroleum and products shipped on the river were up 90 percent, in comparison with a nationwide growth of only 65 percent; and that, in only 9 years the quantity of chemicals carried on the Ohio had increased by 175 percent, in comparison with the national increase of only 80 percent.[2]

[2] Sources of data—Shipments on the Ohio River: Corps of Engineers, U.S. Army nationwide shipments of respective industries:
Steel: American Iron and Steel Institute.
Coal: U.S. Bureau of Mines.
Petroleum and chemicals: U.S. Department of Commerce.

INFLUENCE OF THE RIVER ON THE IRON AND STEEL INDUSTRY

The Nation's major iron and steel producing area, the Pittsburgh-Youngstown-Wheeling district, as well as other important steel centers in the upper Ohio Valley, has become increasingly dependent on river transportation in recent years. This district is a "steel surplus" area, and to operate economically it must ship a larger portion of its output into consuming areas which are geographically closer to competitive producing points than is true of other steel districts. For long-distance movements, barging costs, including handling charges, may run as low as 25 percent of rail rates. Thus, its Ohio River location brings the district into competitive reach of western and southern markets. Whereas the average length of haul of all commodities moved on the Ohio River is 215 miles, that of iron and steel is over 710 miles. Most steel, in fact, moves the entire length of the river to destinations on the Mississippi, much of it as far away as the gulf coast.

Not only is the industry materially aided by barge transportation in reaching its markets, but, in addition it achieves a competitive production cost by bringing in most of its coking coal by barge. For the Pittsburgh district as a whole, the cost of inbound coal transportation to coke ovens runs about 15 percent of the comparable cost in the Chicago district, offsetting, just about in full, the Pittsburgh disadvantage as to iron ore.[3] Thus, the competitive strength of the Pittsburgh district as an iron-producing center rests directly upon water transportation of inbound coal.

From 1955 to 1959, the steel industry built additional annual capacity in the Pittsburgh area of over 1.5 million ingot tons, an expansion of 11 percent.[4] Elsewhere in the upper Ohio Valley—at Ashland, Ky., Steubenville, Ohio, and Weirton, W. Va.—expansion occurred in even greater percentages. While the steel industry of the upper Ohio Valley has many strong competitive features, it appears quite clear that its continued contribution to the growth of the Nation's economy will be very substantially affected by relief of the impending congestion crisis on the Ohio River.

COAL MOVEMENT AND THE MINING INDUSTRY

The growing movement of bituminous coal on the Ohio River plays an economic role at least as vital. The beneficial consequences of this traffic extends back into the coal mining industry and forward through the generation of electric power into a broad base of industrial development. With regard, first, to coal mining, the industry has faced very difficult marketing conditions for a number of years. This circumstance, combined with rapid mechanization of mining operations, has drastically reduced employment. In fact, the number of employees in bituminous coal mining declined from 368,000 in 1950 to only 195,000 in 1958.[5] Unfortunately, most coal mining communities are geographically isolated, offering little alternative employment. In these communities, the curtailment of mine income extends itself into many other occupational areas of trade, service, and finance, and when hundreds of such communities, contiguous with each other, comprise an extensive mining region, the effect of broad regional economic stagnation, perpetuated over a dreary succession of years, becomes a problem of general national concern.

The shipment of coal on the Ohio River has greatly moderated the severity of this problem. Over 80 percent of all the bituminous coal mined in the United States is produced in the six States of the Ohio Valley, and the Nation's coal industry is thus primarily an Ohio Valley industry. Transportation is especially crucial to coal. In the work previously cited, Dr. Joseph R. Hartley of Indiana University states: "Transportation cost frequently equals half the delivered price of coal to consignee." Thus, the Ohio River barging system is a godsend to this industry. Dr. Hartley's researchers reveal that a representative cost of coal barging is 4 mills per ton-mile, in contrast to a typical rail charge of about 11 mills.[6] While many interchange movements reduce this differential, the economy remains a big one. In 1957, over 44.7 million tons of coal found an outlet to market via the Ohio River, up from only 18.5 million in

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[3] Marvin J. Barloon, "The Expansion of Blast Furnace Capacity, 1938–52; a Study in Geographical Cost Differentials," the Business History Review, March 1954.

[4] American Iron & Steel Institute, "Annual Capacities of Coke Ovens, Blast Furnaces, and Steelmaking Furnaces as of January 1," respective years.

[5] U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, annual supplement issues.

[6] Joseph R. Hartley, op. cit., pp. 63–67.

1945. It is clear that the continued easing of broad community dislocations and the protection of mining investment in the coal regions is urgently dependent on keeping open the channels of traffic growth on the river.

COAL MOVEMENT AND ELECTRIC UTILITIES

Turning now, to the coal-consuming industries, the impact of river shipping has been little short of spectacular. While coal is consumed by a large number of manufacturers, including, notably, iron and steel and chemicals, its broadest influence is in the generation of electricity. With the energy content of coal converted into electric energy, this fuel constitutes the primary source of power for an endless variety of consuming industries. Furthermore, the beneficial influence of the coal movement is carried by high voltage transmission lines in complex systems of power interchange to consuming centers well beyond the confines of the Ohio Valley.

Because of the low cost of waterborne coal, and because of great advances in the transmission of current, the electric utility industry of the Ohio Valley has grown enormously during the past 20 years. Exhibit IV shows the growth of electric generating capacity on the banks of the Ohio River and its navigable tributaries from 1941 to 1958, an increase of 538 percent, comparable to the nationwide increase during the same period of only 221 percent.[7] This growth has been widely distributed the full length of the valley. Electric generating capacity on the banks of the river is now just short of 10 percent of the national total.

Thus the movement of coal by barge has become integrated into the coal-electric energy network. Because of low-cost water transportation, the average cost of utility coal at the plant on the Ohio River was only $4.57 per ton in 1958, in contrast to a national average of $6.58. Converted into electric energy, the comparable costs of coal per kilowatt-hour were 2 mills on the Ohio as against 3 mills nationally, as indicated in exhibit IV.[8]

ENERGY COSTS AND INDUSTRIAL ECONOMY

Cheap and abundant electricity is converted immediately into low power costs through the mechanism of the fuel adjustment clause. This clause, characteristically included in industrial utility contracts, provides for an automatic adjustment in rates with alterations in the cost of fuel at the generating station. Through this mechanism, the costs of congestion on the Ohio River are transmitted directly into the manufacturing costs throughout the entire industrial system, both within and beyond the limits of the valley. Because of the variety of industries involved, and because so many establishments lie outside of the valley, it is not possible to trace in quantitative terms the magnitude of this stake in the free flow of navigation on the river. Two energy-consuming industries, however, deserve especial mention. These are aluminum reduction and atomic energy.

GROWTH OF THE ALUMINUM INDUSTRY

Because cheap and abundant electricity is so vital to aluminum reduction, most of the national growth in aluminum capacity since 1956 has taken place on the banks of the Ohio. Electricity accounts for about 20 percent of the price of pig aluminum.[9] From the end of 1956 to September 1959, the aluminum producers built 325,000 tons of additional reduction capacity on the Ohio River in comparison with 235,250 tons elsewhere in the country, and as of September 1959, an additional 150,000 tons of capacity was under construction on the Ohio as against only 119,000 tons elsewhere.[10] Exhibit IV summarizes these figures.

In view of the broad national benefits of low aluminum prices, no avoidable obstacles should be placed in the path of economical production. Dr. Hartley, in the work previously cited, speaks as follows:

"Assuming that economies resulting from the river produce cheaper aluminum, how large a territorial group of consumers receives the benefits? The answer is that every buyer of an aluminum product shares equally in the savings on a

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[7] Sources: National Coal Association, Federal Power Commission, Moody's Investors' Service.

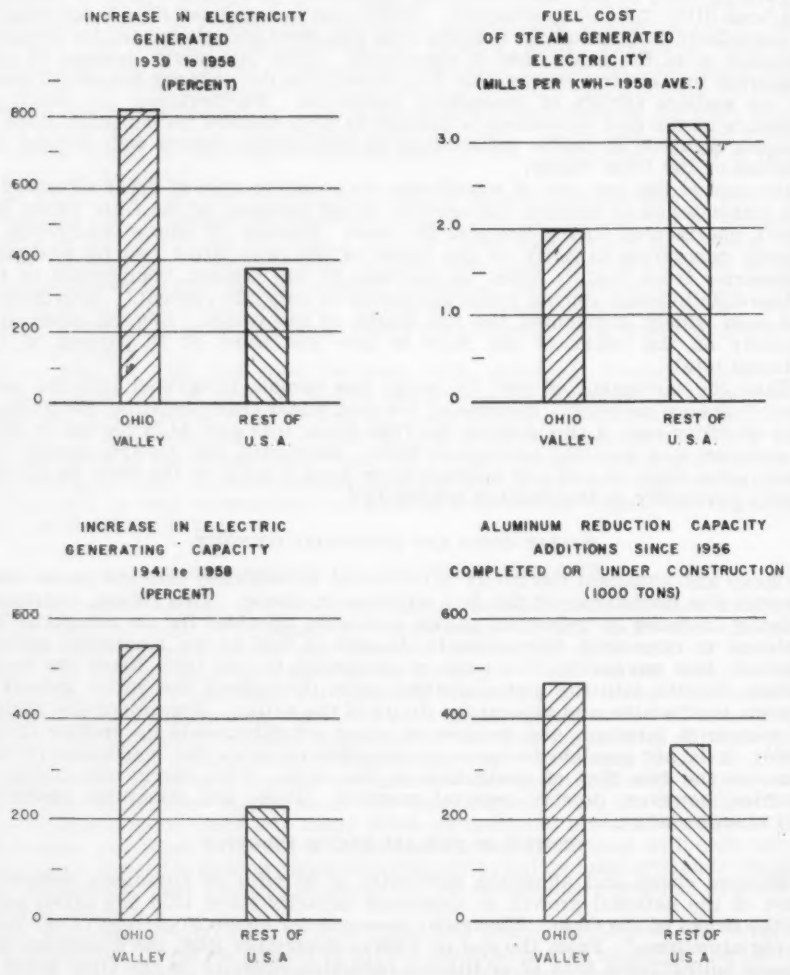
[8] National Coal Association, Washington, D.C., "Steam-Electric Plant Factors, 1958."

[9] E. B. Alderfer and H. E. Michl, "Economics of American Industry," McGraw-Hill, New York, 1957, p. 111.

[10] U.S. Department of the Interior, Bureau of Mines.

EXHIBIT IV

GROWTH OF THE ELECTRIC POWER AND ALUMINUM INDUSTRIES IN THE OHIO VALLEY[1]



[1] FACILITIES ON THE OHIO RIVER AND ITS NAVIGABLE TRIBUTARIES EXCLUDING THE TENNESSEE RIVER

nationwide basis. Aluminum companies charge a uniform price for aluminum ingot throughout the Nation. That is, they average their freight costs equally over all their customers." [11]

A benefit, so widely diffused throughout every State in the Union, would certainly be, to some extent, adversely affected by the choking off of traffic growth on the Ohio River.

THE OHIO RIVER AND ATOMIC ENERGY

The Ohio River is making a major contribution to the Nation's program of atomic energy. Electricity for the huge Portsmouth area project of the Atomic Energy Commission is furnished by two large generating stations, one near

[11] Joseph R. Hartley, op. cit., p. 78.

Gallipolis, Ohio, and the other near Madison, Ind. These facilities are operated by the Ohio Valley Electric Corp. and the Indiana-Kentucky Electric Corp., joint ventures in which 15 private utility companies from the length and breadth of the Ohio Valley participate. The electric energy is produced entirely from coal—some 7.5 millions tons per year—delivered by river barge under what has been characterized by the producing companies as "the largest single coal supply commitment in the history of (the coal) industry." [13] Clearly the future of this vital program is involved in the continued free flow of traffic on the river.

GROWTH OF THE CHEMICALS INDUSTRY

The rising tonnage of chemicals shipped on the Ohio reflects a correspondingly immense growth in the chemicals industries in this area. Indeed, the Ohio Valley has now become one of the Nation's major chemical producing centers. According to a survey of the Ohio Valley Improvement Association, there have been more than 120 major new chemical plants or plant additions constructed on the banks of the river and its navigable tributaries since 1950. These plants constitute a broad base of industrial strength because their products serve a numerous variety of manufacturing industries, transmitting the economy of low-cost chemicals very broadly throughout the economic structure. They manufacture such products as fertilizers, synthetic rubbers, acids, calcium carbide, acetylene, ammonia, neoprene, synthetic fibers, silicones, aniline, intermediates, and plastics of all kinds. Through the media of these products, consuming industries in every State in the Union have an indirect stake in Ohio River navigation.

THE ROLE OF BARGING IN THE PETROLEUM INDUSTRY

The movement of petroleum and petroleum products is among the most efficient on the river, achieving costs directly competitive with pipeline movement. Because so large a portion of the Nation's oil reserves are geographically remote from the major concentrations of population and consuming industries, the transportation structure of the industry is especially crucial. Barge transportation plays an essential role in this srtucture. Most movement of crude oil and products is by pipeline, and pipeline transportation is very economical. However, a pipeline represents a fixed investment of fixed capacity between fixed points. Therefore, it is unsuited to accommodate irregularities in demand and geographical shifts in the markets. Barge transportation, subject to easy redirection as to origins and destinations, provides a vital supplement of flexibility, providing immense savings in inventories and in pipeline investment. Should congestion on the river become insupportable to the petroleum movement, it would be at the cost of seriously impaired efficiency in the use of the Nation's resources for petroleum investment.

TRANSMISSION OF BENEFITS TO OTHER INDUSTRIES

I have given these industries special mention because they are so basic to the economic development of the valley and constitute the foundation of growth for many other industries. According to a survey of the Ohio Valley Improvement Association, about $15 billion have been invested in major new plants or plant additions in counties on the banks of the Ohio River and its navigable tributaries since 1950. While many of these new plants do not use the river for transportation, most of them were constructed here for reasons derived directly or indirectly from transportation economy. The availability of a wide variety of low-cost steels, of aluminum, of industrial chemicals, electric power, and other direct products of river transportation have made this an attractive location, even to those whose managements who may not have recognized the role the river played in laying the foundations for their decision to build here. Even those new industrial establishments which do not use the river have been constructed in the Ohio Valley, to a large extent, as an indirect consequence of low-cost navigation.

RELATIONSHIP OF WATER CARRIAGE TO RAILROAD TRANSPORTATION

Because the railroads are commonly considered to be injured by waterway competition, your committee may be interested in the experience of the

[13] Release entitled "Power for Peace" by the OVEC and the IKEC, 1956.

leading railroads of the Ohio Valley during the period of rapid growth of freight carriage on the river. Exhibit V on page 25 presents the record of change from 1946 to 1957, inclusive, with respect to ton-miles of revenue freight carried and with respect to freight revenue for the four leading railroads serving the valley area. For purposes of comparison, corresponding data are presented for all class I railroads in the country. It will be noted that while ton-miles of revenue freight carried by all railroads went up during this 12-year period by 4.3 percent, that of the railroads serving the Ohio Valley increased by 25.2 percent. The dollar freight revenue increase for all railroads was 54.3 percent while that for those serving the Ohio Valley was 75.6 percent.

It should be borne in mind, of course, that all four of these railroads serve extensive areas outside of the Ohio Valley and that traffic development in these outside areas enters into the comparison. Therefore, the comparison is inconclusive with respect to rail freight development in the Ohio Valley alone. What the comparison does show, however, is that the massive increase in waterway freight has, at least, not impaired the overall competitive position of these railroads, and, further, that it would be reasonable to infer that, in important respects, the railroads may have derived substantial benefit from the industrial growth associated with waterway transportation.

EXHIBIT V

Postwar experience of railroads servicing the Ohio Valley compared with all class I railroads of the United States, 1946–57

	Indexes of ton-miles of revenue freight		Indexes of freight revenue	
	Four Ohio Valley railroads [1]	All class I railroads, U.S.A.	Four Ohio Valley railroads [1]	All class I railroads, U.S.A.
1946	100.0	100.0	100.0	100.0
1947	122.1	110.6	125.3	121.7
1948	119.3	107.9	142.4	137.8
1949	90.3	88.9	120.1	121.8
1950	104.1	99.4	137.8	135.1
1951	119.0	109.2	158.1	149.2
1952	107.7	103.9	154.0	151.9
1953	104.1	102.3	155.7	154.7
1954	91.7	92.7	132.3	134.8
1955	113.8	105.4	153.5	147.6
1956	125.5	109.3	171.2	154.7
1957	125.2	104.3	175.6	154.3

[1] Ohio Valley railroads: Baltimore & Ohio; Chesapeake & Ohio; Louisville & Nashville; Norfolk & Western.

New industries drawn to the river by its navigation advantages normally generate a large amount of rail and truck traffic. These industries bring in bulk fuels and materials by water, but, at the same time, they also bring in and ship out supplies, components, and finished products by rail. Certainly such developments as the expansion of 1.5 million tons of steel ingot capacity in the Pittsburgh area and the construction of 120 new chemical plants and plant additions on the Ohio River have generated a large volume of railway freight business. Furthermore, while the river carries the lower-rated bulk haulage, the rail traffic generated consists largely of the more remunerative classes of high-rated components and finished goods.

CLASSES OF WATERWAY FREIGHT NOT RAIL-COMPETITIVE

On the other hand, the amount of freight taken from the railroads by river transportation is not as great as often supposed. The largest single movement on the Ohio River, as measured in ton-miles carried, consists of petroleum and petroleum products. This movement, virtually in its entirety, is pipeline-competitive and would not move by rail in any case. The second largest movement, almost equal to petroleum, is coal. While some portion of the coal movement is rail-competitive, most of it moves to electric utility plants which, but for river transportation, would not have been located where they are. With the develop-

ment of economical long-distance transmission, new utility plants are locating ever farther from the consumer markets and closer to the fuel source. Therefore, if these new generating stations had not been located on the river, many of them would have been built, instead, at the coal mine, as, indeed, growing numbers are, transmitting current ever longer distances to market.

Thus, to a considerable degree, coal movement to electric utilities on the Ohio River is competitive, not with railroad transportation, but rather with high-voltage transmission lines. Considering, altogether, the large amount of rail freight business generated by the expansion of water-based industries and the considerable extent to which waterway traffic is not rail-competitive, it would appear reasonable to infer that the growth of barge traffic on the river has been of net benefit to the valley railroads.

IMPACT OF INDUSTRIAL GROWTH ON INCOMES AND TAX CONTRIBUTIONS

Were it not for the immense industrial growth of the Ohio Valley much of the valley area would be economically depressed and burdened with an excess or inefficiently occupied labor force. This is particularly true in certain portions of the upper valley characterized by submarginal farming and by declining employment in the mines. The generation of new industrial incomes in these areas is a net addition to the Nation's wealth and product. While the levels of income in portions of the valley are not yet as high as the national average, they are gradually catching up, and there appears to be no avenue of continued improvement comparable in effectiveness to the continued growth of river-based industry.

Higher incomes in the Ohio Valley, through the mechanism of progressive surtax rates, generate increasing revenues to the Federal Treasury. Indeed, the evidence is very strong that the share of the Ohio Valley in the Nation's total Federal tax contribution has gone up markedly since the end of World War II. The contribution of the valley area to corporate income and, therefore, to corporate taxes cannot be traced because of reporting from home offices outside the valley. However, with respect to personal income taxes, five of the Internal Revenue Districts coincide roughly with the drainage basin of the Ohio, and the growing share of these districts in the national total is shown in exhibit VI. It will be noted that since 1946 Federal tax collections in the valley have amounted to $2.9 billion more than they would have been had the valley's share in the national total remained the same as it was in that year. How much of this growth emerges from industrial expansion along the river cannot be stated with assurance, but there is no doubt that such expansion has played a substantial role.

INDUSTRIAL GROWTH AND THE NATIONAL DEFENSE

The U.S. Government benefits from Ohio Valley development in yet another respect. The largest group of expenditures in the Federal budget are those for the national defense. National defense expenditures respond directly to prices quoted by industrial contractors, and the efficiency of manufactures coupled with abundance of basic industrial materials yields lower quotations and greater economy in the defense program. Surely the massive expansion in the Ohio Valley of such basic industries as steel, chemicals, petroleum, electric power, and aluminum has contributed significantly in recent years to the achievement of defense objectives within a closer limitation of expenditures than would otherwise have been possible. Prompt modernization of the navigation system will carry forward this benefit.

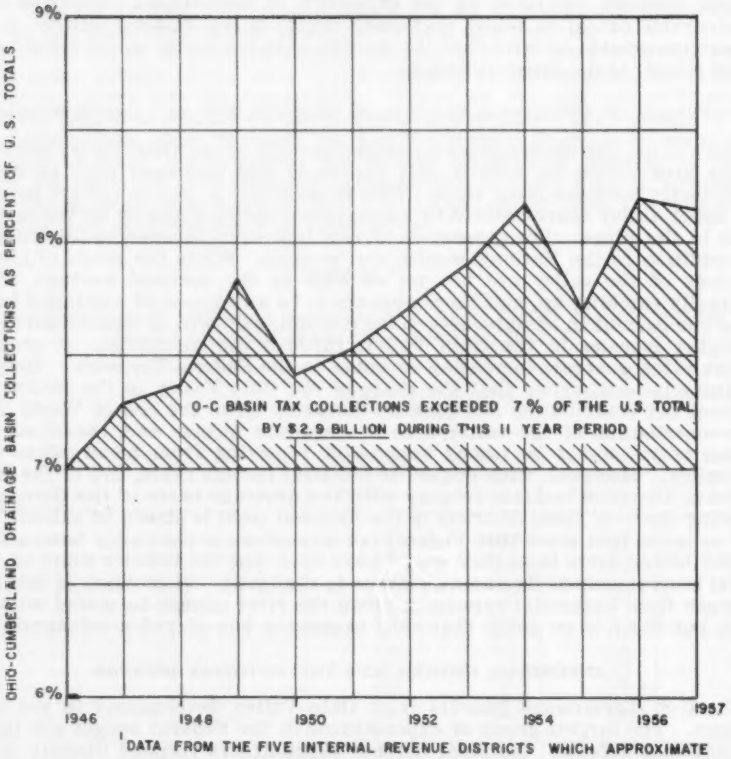
MODERNIZATION OF THE OHIO RIVER AS A PUBLIC INVESTMENT

The Federal budget for any fiscal year consists of two entirely different kinds of outlays. One type of outlay is that which, however well justified by policy considerations, represents, nevertheless, a drain on the economy, drawing upon resources and productive facilities, but adding nothing to their restoration or growth. Such an outlay can be justified only in noneconomic terms. It is a form of consumption, like the expenditures of a private household.

The other type of Federal outlay, however, is a public investment. The modernization of the Ohio River system falls in this category. Such an outlay, of course, draws upon the labor and resources of the American people at the time it is made and presents to the Federal Government a current budgetary charge. However, once the expenditure on a new facility has been made, it will reward the national community over a period of many years with greater wealth than its construction originally absorbed. It is an acquisition of a public asset.

EXHIBIT VI

FEDERAL INDIVIDUAL INCOME AND EMPLOYMENT TAX COLLECTIONS IN THE OHIO-CUMBERLAND DRAINAGE BASIN[1] AS PERCENT OF U.S. TOTAL COLLECTIONS 1946 THRU 1957



[1] DATA FROM THE FIVE INTERNAL REVENUE DISTRICTS WHICH APPROXIMATE THE OHIO-CUMBERLAND DRAINAGE BASIN: CINCINNATI, INDIANAPOLIS, LOUISVILLE, PARKERSBURG, AND PITTSBURGH.

SOURCE: U.S. COMMISSIONER OF INTERNAL REVENUE, ANNUAL REPORT.

In the current preoccupation with the pressing budgetary problems of the Federal Government it is vital to distinguish between these two types of proposed outlays. To some it may seem prudent, in the immediate budgetary outlook, to reduce and postpone the respective projects of the modernization program. Meanwhile, however, the jamming up of barge traffic in the old locks becomes progressively more frequent and prolonged, and the day is near at hand when in the absence of prompt action, the Ohio River would be retiring from its historic role as a force for industrial growth. The truer prudence, therefore, would rather seem to be one of advancing the modernization program expeditiously, to renew the process of enlargement of the Nation's wealth and product and to improve for the Government the budgetary base for fiscal years of the future.

Mr. MACK. In that statement, Professor Barloon calls attention to this rapid growth that we have on the river in traffic. He notes that the calculated growth trend in ton-miles over the past 43 years, that is from 1915, taken from that date to 1958, the calculated growth amounts to 8.9 percent annually.

The CHAIRMAN. Compounded?

Mr. MACK. No. He has not compounded it.

On the basis of that——

The CHAIRMAN. I wonder if he has not?

Mr. MACK. I doubt it. I am not prepared to say. Maybe Mr. Hull might be able to answer that question for you.

The CHAIRMAN. I would like to have that point accurate in the record, at this point, because I would be greatly surprised if it is not a figure based upon the compounding increase.

Mr. MACK. May I ask: Bill, are you in a position to answer that question? I am not.

Mr. HULL. Pardon me. Senator, it is a logarithmic curve trend.

The CHAIRMAN. Well, now you lost me.

Mr. MACK. You lost me there, too.

Mr. HULL. I lost myself.

All I know is that according to the mathematics of it, it is an attempt to smooth out the actual annual increases of traffic to a trend load.

The CHAIRMAN. When does the figure start?

Mr. MACK. 1915.

Mr. HULL. 1915.

The CHAIRMAN. That would be 43 years?

Mr. MACK. Yes, sir.

Mr. HULL. Yes.

The CHAIRMAN. Your traffic in 1915 was not over 10 million tons?

Mr. HULL. It was not.

Mr. MACK. I doubt it was half that, Senator, in 1915.

The CHAIRMAN. If your annual increase was 8 percent. Eight times 43 would be 344. If you apply that to 5 million tons you do not come anywhere near the present 95 million.

Mr. HULL. It is an accumulated factor, Senator.

The CHAIRMAN. It would have to be compounded.

Mr. MACK. I am not sure this occurred—as Bill says I understand it to be a logarithm and frankly I do not know what a logarithm is, Senator.

The CHAIRMAN. It is a good safe term to use, but it will be in the record.

Mr. MACK. Yes.

The CHAIRMAN. Thank you.

Mr. MACK. The growth is in there in detail.

The CHAIRMAN. All right.

Mr. MACK. All I say is as a result of that estimate he has reached the conclusion that in 1968 the Ohio River traffic will reach 40.2 billion ton-miles. If that continued growth goes on until 1968 that is what we will be carrying on the rivers.

The CHAIRMAN. 42 billion tons?

Mr. MACK. 40.2 billion.

The CHAIRMAN. 40.2 billion tons?

Mr. MACK. Ton-miles.

The CHAIRMAN. Does he give that in terms of annual tonnage handled also?

Mr. MACK. Yes, later on. I got that figure for you just a little later on.

The CHAIRMAN. OK.

Mr. MACK. You mean based on actual tons rather than ton-miles?

The CHAIRMAN. You told us when you had 13 and probably had 5, and you told us in 1957 you had 81 tons of annual traffic. I would presume now the 1968 estimate would be there somewhere in terms of annual tonnage and not just the annual——

Mr. MACK. That is right. As I say, what I mentioned to you earlier was in actual tons moved, and in 1968 that is also reflected in addition to the ton-miles. That will be reflected in actual——

The CHAIRMAN. Annual tonnage?

Mr. MACK. Annual tonnage, yes.

The CHAIRMAN. All right.

Mr. MACK. If we assume, and I think we must, that this continued growth is going on, it is a pattern. It is an established pattern.

We have to take a point in the river and we have, for the purpose of the study, taken a typical lock, which is Lock No. 20, which is a few miles below Parkersburg, W. Va. Based upon the 30-year growth trend, at this lock, Professor Barloon predicts that in 1967, the cost of congestion in the pool at that particular lock will have reached 4 mills per ton-mile. In other words, that doubles the cost of river transportation. I think it is important to point out.

The CHAIRMAN. Is that based on the assumption that the lock now in operation would not be either replaced or improved?

Mr. MACK. That is right. Based on this assumption if it continues on as it is now.

The CHAIRMAN. Is that particular lock one that has been in for sometime or one of the new ones that has recently——

Mr. MACK. No, that has been in the old program and before 1929.

The CHAIRMAN. All right.

Mr. MACK. Then the professor concludes that as a result of such cost burdens traffic growth in this particular reach of the river at Lock 20 near Parkersburg, will be completely stifled by 1967 unless the authorized Belleville replacement structure, now that is the new one that will replace that, and that is now in the planning stage, in the reach river, is completed before that time.

I take that case as an illustration of the outlook on all segments of the Ohio River. I just picked that one out.

The CHAIRMAN. You see our committee is charged with the responsibility to make the report estimating the needs for the next 20 years specifically and generally for 20 years following.

Mr. MACK. Yes, I understand.

The CHAIRMAN. My opinion is if your professor carried his estimate forward to the time covered by the period with which we are concerned that he would have given you the date there in this century when that replacement lock would be so congested that it would meet the same crisis you are now describing that you have now.

Mr. MACK. I admire your judgment for that, Senator. It is a thought that is in my mind too.

My grandfather was in this association and back before the turn of the century when they projected themselves into the future they thought that the locks and dams that were put in at that time were going to be good for the next 100 years. By golly, before they were

finished, they were inadequate and obsolete. I think that is a program then that we should go in further and see whether or not we are making the same mistake this time that a generation before us made.

The CHAIRMAN. You know when Henry Ford brought the Model A Ford out, he said, "This is it."

Mr. MACK. Yes.

The CHAIRMAN. "There will never need to be anything better. This is it."

Mr. MACK. Senator, I just got a new car and I drove in it yesterday, and I am not too sure Mr. Ford wasn't right.

The CHAIRMAN. That is on account of a characteristic of the human being—due to his great consciousness of the evils present with us today, he would return to those of the past which he has forgotten.

Mr. MACK. I honestly regard this statement of Professor Barloon as one of the greatest contributions to public understanding of imperative necessity of acceleration of the Ohio River modernization program to be a maximum extent consistent with efficient investment of public funds.

Incidentally, since the Ohio River modernization program was resumed in fiscal 1955 construction has been commenced on a total of six new starts under this new program, averaging one new start a year. Thirteen locks and dams remain to be started and at least 5 years were required for the completion of each one of these locks and dams.

Therefore, at the rate of progress in effect during the past 6 years it is going to take us close to 20 years for the ultimate completion of this program on the Ohio River.

In other words, it is going to be 1980 before we have the locks and dams in.

In view of the imminence of the retarded traffic growth resulting from the inadequacies of the existing system and probable cessation of growth in the late 1960's, with consequent impairment of the economic development of the Ohio Valley, we consider it imperative that the rate of progress of the modernization program be accelerated to permit completion in not more than 10 years.

As I pointed out before, there is one lock and dam which is a good indication of all the locks and dams on the river. They are going to to be completely stifled in 7 years with this growth. The estimated total cost of the program as of June 30, 1959, was $1,120 million, of which approximately $152 million has been appropriated through fiscal 1960, leaving a balance of approximately $968 million to be appropriated through fiscal 1970 under the 10-year plan which I had recommended.

Senator HARTKE. Let me ask you there, Mr. Mack, have the Army Engineers indicated a capacity and capability to do this within 10 years?

Mr. MACK. Yes, they have. That has been worked out very closely with them on a feasibility program.

Senator HARTKE. In other words, what is the holdup then?

Mr. MACK. It is appropriations, sir. That is the holdup.

Senator HARTKE. Who is responsible for that?

Mr. MACK. I would like to go back to the automobile, if I may, Senator.

Senator HARTKE. Go ahead.

Just proceed with your statement.

Mr. MACK. That is, an average of some $96,800,000 annually would be required as compared with the total of $62,204,000 required in the President's fiscal 1961 budget.

Senator HARTKE. I think that is a very responsive answer.

Mr. MACK. I think it is indicative. It is an answer to your question.

Senator HARTKE. I might say this. I mean, we were doing this rather lightheartedly. This is a quite serious thing, though. This is not something that can be lightly tossed aside. Is that right? I am a native of Evansville, and have a deep concern about this.

Mr. MACK. I know you are, Senator.

Senator HARTKE. I also worked with your organization even before I was in the Senate.

Mr. MACK. I know that.

Senator HARTKE. So I am not unacquainted with your activities and have known you for a number of years, too.

Mr. MACK. That is right, Senator.

Senator HARTKE. The point about it is if we expect to have industrial and economic growth not alone in that southern area, if this river traffic is really stifled by 1967 we are in trouble, are we not?

Mr. MACK. I think that is one of the most urgent things that is before the administration. I am amazed that it is not just a self-evident thing to them. I do not understand.

Senator, I am not a wise man politically.

I am from a river town, such as you are. I know what we need. I know it is urgent. I know it is a thing that affects our whole country. I am dedicated to it.

I think I am doing something for my children and grandchildren and why that has to be put before the administration and presented and argued and begged for I do not understand.

I thoroughly agree with your conclusions and admire you for them too.

Senator HARTKE. Thank you, sir.

Mr. MACK. I think that the growth of industry and population in the Ohio Valley has greatly increased, too, the urgency of the comprehensive flood control for our valley.

You know it was only a year ago that major floods struck in the States north of the Ohio River with terrifying violence. The Wabash Valley here in Indiana, the valleys of the Muskingum, the Mahoning, the Scioto, the Allegheny and the Shenango, and other streams in Ohio and western Pennsylvania were scenes of disaster. The total damages caused by these floods exceeded $115 million. Only 2 years ago, similarly severe flooding occurred in eastern Kentucky, southern West Virginia and southwestern Virginia, causing damages of some $65 million.

We believe in view of these tragic evidences of the inadequacy of the existing protection and awesome potentialities of even greater and more damaging floods, rapid acceleration of the comprehensive flood control program is urgently demanded in the public interest just the same as our transportation and navigation problems.

Costs are rising; the projects are of demonstrated soundness and necessity; and they must be built. Unnecessary delay is not only a waste of public funds, it is a gamble with the public safety. The human values involved—life and health—make it difficult to set specific monetary goals on how much that is worth. Surely, however, in our opinion, the average rate of about $30 million annually since the program was initiated, and that has been some 20 years ago, has been far too slow. Remaining costs complete are about $1,773 million and nearly 60 years would be required for the completion at that rate. Acceleration to a 15-year program on this flood control involving average annual costs of about $120 million does not seem to be excessive, but developing conditions may require variations of that tempo.

We appreciate that. We therefore urge acceleration now to the maximum capabilities of the Corps of Engineers for efficient utilization of funds and continuous review to determine appropriate rates of progress to provide for special needs.

There is no reason to try to spend money. We have no desire or we try not to indicate that. It is not just a question of spending money. We do not want to spend any more money than the project requires and what the Engineers can do with it. We have been very careful to indicate that throughout our entire program.

We have an addition to the flood control and navigation problems. There has been an unprecedented demand for water supply in our valley. All possible steps have to be taken to expedite the construction of water resource development projects so designated as to augment water supply as well as to alleviate flood hazards.

Augmentation of low flows for nonexclusive use is most urgently required by the growing communities and industries of the valley. Low-flow regulation is also a vital factor in obtaining the economic values of dilution in stream-pollution control.

The requirements of existing law, set forth in the Water Supply Act of 1958, with which you are familiar, Senators, is for the payment for water storage features by local interests—even where benefits are widespread and nonexclusive—they are manifestly unjust and fail to recognize the national interests at stake.

Such unjust and unrealistic limitations are a barrier to essential improvements; they result also in failure to utilize project site potentials at a time when industrial and community growth is drastically restricting the availability of suitable sites.

Our association urges legislation to remedy this defect along the lines which have been proposed by the distinguished chairman of this select committee. The remedial character of such legislation strongly argues for its application to projects commenced under the restrictive provisions of existing law.

Our association is concerned with the growing danger of preemption of suitable sites for water resource development by growth of population, industrial expansion, and highway construction. Here, as elsewhere, the number of sites is limited. Their preservation and maximum utilization are essential to the conservation and sound development of our water resources.

This increasingly serious consideration argues strongly for acceleration of detailed advance engineering and design work to determine

project sites, so that the public can be advised and preemption minimized.

In that connection, we think serious consideration should be given by the various States to zoning legislation to assure preservation of desirable project sites.

Now, the statements are in the file for your view. I touched upon transportation and navigation which is my primary interest. I touched on flood control and water resources.

To some of your colleagues who are not familiar with what goes on in our valley, I wish we could get them out here sometime, Senator, to see what is going on in the Ohio Valley, the great industrial expansion, beautiful ships going up and down this river of ours. We need everything that we have asked for.

In addition to that, and you will probably hear this from other sources who are more qualified to tell you about it than I am, there is great recreational benefits with these new locks and dams. Extended pools of some 35 miles now exist where people can get a lot of pleasure out of boating on rivers and are doing it even in our area in Cincinnati.

I was amazed to find out from the U.S. Coast Guard that in that pool in Cincinnati there is over 12,500 registered motorboats in our pool right in Cincinnati so the potential is tremendous for people to have a lot of fun with it too.

I have taken up more time than I expected.

I want to file in addition to Professor Barloon's statement for the record our association's fiscal 1961 recommendations to the Bureau of the Budget, which comprehensively presents our overall program. I am sure you will not have any objection to accepting that, and with it I have also asked your leave to file some wires and statements from other members of our association who are interested in this work.

And for myself I would like to express to your committee my sincere appreciation for the opportunity to present our views on matters which I believe and we believe are of urgent concern to our national welfare.

We are quite proud, Senator, of some of the things that have been done by people and Senators who recognize the problems in our area and how important it is to the whole country.

(The statement presented to the Bureau of the Budget is not included here. The wires and statements are included at the end of Mr. Hull's statement.)

Mr. MACK. With that, I would, if I may, like to present to you Mr. Morris Creditor, from Cincinnati, who is president of the Ohio River Co. who operates the fleet of vessels on the Ohio River and other rivers, and is one of our larger common carriers.

The CHAIRMAN. All right.

Senator HARTKE. I take it, Senator, Mr. Mack has extended an invitation to you, Senator Hart, and all the members who can, as many as possible, to come and visit this beautiful Ohio River, and I am sure, knowing their past treatment of visiting dignitaries, they can make it an enjoyable as well as educational venture.

The CHAIRMAN. Until you used that last word I was about to accept. Does he give the same treatment to the common people?

Mr. HARTKE. Yes, sir.

The CHAIRMAN. OK.

All right, Mr. Creditor.

STATEMENT OF MORRIS CREDITOR, PRESIDENT, THE OHIO RIVER CO., CINCINNATI, OHIO

Mr. CREDITOR. Mr. Chairman, the name is Morris Creditor. I am president of the Ohio River Co. of Cincinnati, Ohio, a common carrier bargeline. We operate 22 towboats and about 600 barges and handle more tonnage than any other for-hire carrier on the inland waterways of the Nation. In 1959 we handled over 15 million tons of freight.

Incidentally, you were asking a little while ago about what tonnage was handled in 1915 for purposes of comparison. I might say here that in 1926 when we started operating, the first year of operation we handled 399,000 tons, not quite a half million. Today it is 15 million and that gives you the measure of growth that is taking place.

The CHAIRMAN. Yes.

Mr. CREDITOR. I might mention that from a profit standpoint we have been fairly successful. Our good fortune in having a profitable operation has enabled us to spend about $25 million in the past 5 years to improve and expand our fleet to take care of the transportation needs created by the steady and dynamic growth of industry along the waterways we serve.

What I have just said about our company sounds like a lot of bragging. Well, I want to tell you something. Our company did not create a single pound of the millions of tons we handled last year. We are a service company and, as such, we simply transported the products which had been mined, produced, or manufactured by the great industries located along the inland waterways. The electric utility plants, the steel mills, the chemical plants, the atomic energy plants, the coal mines, the grain elevators, the aluminum plants, the oil refineries, they are the ones who created the traffic and they, rather than the barge operators, are the real users of the waterways.

Now, these large basic industries along the waterways just did not locate there by happenstance. They are there because of the wisdom and foresight of the legislators and administrators of our Federal Government. And I don't mean the Roosevelt administration, the Truman administration, the Eisenhower administration, the Republican Party or the Democratic Party. I am talking about our Federal Government, going back over a period of 170 years.

They realized then that if our economy was to grow our water resources had to keep pace with the growth of our population and our commerce. We had to have water for navigation, irrigation, for industrial uses, such as is required by the great powerplants and steel mills, and we had to harness our rivers and streams against the ravages of floods which many of us in our lifetime have experienced. All this has been a responsibility of the Federal Government which it has carried out and is carrying out with great wisdom despite the hackneyed cries of pork barrel each time an appropriation bill comes up for consideration having to do with water resources or the maintenance and improvement of our rivers and harbors.

The Government has one of the greatest investments in its portfolio in this field of water resources and I should think it would try to protect and preserve that investment despite the cliches and cries of

pork barrel, serving of selfish interests, such as helping the barge lines to the detriment of the railroads.

It is interesting to note and understand where these cries come from. I'll tell you where they come from. They come from those who think if the Government would just impose tolls on the rivers, everything would be hunky-dory for them and the Congress could then go ahead and appropriate all the money it wants to repair and improve the docks and dams on our rivers for commercial and navigation purposes.

It has been the policy of the Government for about 170 years that the waterways of the Nation shall be forever free from imposition of tolls. This policy has helped make this country great and even those who are trying to change it have been important beneficiaries of that policy. It is only their shortsightedness which makes them think as they do. Tolls on the rivers is only an excuse and not a reason for what ails them.

No one knows better than you gentlemen of the committee, who have done such a great job at these hearings and on other occasions, what the development of our water resources means to this country. I urge you to do everything possible to continue the great work you have been doing. The money spent will preserve and enhance the greatest investment the Government has on its books. And that, in my judgment, is good business.

The CHAIRMAN. Thank you very much.

Mr. CREDITOR. Thank you very much, Senator.

The CHAIRMAN. Yes, sir.

Now, Mr. Mack, you made the statement for your association and that means you spoke for Mr. Hull as well as yourself?

Mr. MACK. No, I did not speak for Mr. Hull.

Mr. Hull is chairman of our legislative committee and is here and if it pleases your committee he would like to present his case to you now.

The CHAIRMAN. We will be glad to hear from him.

I will say this to the people here that it is our purpose to hear every witness listed here. I can see now that we will need to go right through the noon hour in order to get through by the 3 o'clock deadline that we have. One of us will be here through the noon hour so that this hearing will be continuous until it is completed or until the 3 o'clock deadline has been reached.

STATEMENT OF WILLIAM HULL, CHAIRMAN, LEGISLATIVE COMMITTEE, OHIO VALLEY IMPROVEMENT ASSOCIATION

Mr. HULL. Mr. Chairman and members of the committee, my name is William J. Hull. I reside in Washington, D.C. I am chairman of the legislative committee of the Ohio Valley Improvement Association.

It is my privilege to present to you in summary form this association's position in support of the established free waterways policy of the United States as an indispensable element of any program of waterways development designed to provide low-cost water transportation facilities adequate for the Nation's growing future needs.

The CHAIRMAN. Let me say, just for myself, and what I say binds neither the committee nor the Senate, that I am glad to have you make that case.

As far as I am concerned we will impose tolls on the traffic on our inland waterways simultaneously with the imposition of tolls on our free highways, and with the reimbursement by the railroad transportation facilities for the land and other assets provided by the Federal Government which were instrumental in helping to encourage and secure the development and building of our railroads.

Mr. HULL. I think this is an eminently wise statement of policy, Senator.

Our views are fully set forth in the prepared statement which I now present for the record.

(The statement referred to follows:)

STATEMENT OF WILLIAM J. HULL, CHAIRMAN OF THE LEGISLATIVE COMMITTEE OF THE OHIO VALLEY IMPROVEMENT ASSOCIATION

Mr. Chairman and members of the committee, my name is William J. Hull. I reside in Washington, D.C. I am chairman of the legislative committee of the Ohio Valley Improvement Association, a nonprofit corporation of the State of Ohio with its headquarters in Cincinnati, Ohio. Our association is dedicated to the economic, industrial, and social development of the Ohio Valley, particularly through more effective use of water resources in the Ohio Valley, including modernization of navigation facilities, enlargement of domestic and industrial water supply, and provisions for adequate flood control.

We wish to commend the Senate of the United States and the members of this distinguished select committee upon undertaking the urgent task of formulating a program of water resources development adequate for the expanding future needs of America. It is a privilege for which we are deeply grateful to present to you our views on the water resource needs of the Ohio Valley and on certain aspects of national policy which we regard as of critical importance in assuring a pattern of development necessary to accommodate future requirements and to strengthen and stimulate the national economy in the years ahead.

It is my purpose to present to you this association's position in suport of the established free waterways policy of the United States as an indispensable element of any program of waterways development designated to provide low-cost water transportation facilities which will serve the Nation's needs in peace and war.

OUR NATIONAL POLICY

The established free waterways policy of the United States may be summarized in two propositions:

(1) The waterways of the Nation are and shall remain free common highways accessible to all without toll or tax, and

(2) The National Government has authority and responsibility—acting as a sovereign and not as a proprietor—for the maintenance and improvement of the waterways of the Nation.

FREEDOM OF THE WATERWAYS

The deep-seated disposition of princes and other governmental authorities to levy excessive and discriminatory burdens on the movement of goods was a fact of public affairs well known to the founders of this Republic. The commercial chaos and economic collapse resulting from oppressive and discriminatory port charges, import duties, and restrictions imposed by the various States under the Articles of Confederation were the primary occasion for the Constitutional Convention of 1787. The lessons learned from this sobering experience produced the commerce clause of the Federal Constitution,[1] the accompanying prohibitions

[1] Corwin, Edward S., "The Constitution and What It Means Today," 11th ed., p. 44,, Princeton University Press, Princeton, N.J., 1954.

against discriminatory taxation [2] and port preferences,[3] and restrictions on State tonnage duties [4] and taxes on imports.[5]

The Ordinance of 1787, which is, of course, the cornerstone of our free waterways policy, was evolved during this period. The navigation clause was initially proposed by Timothy Pickering of Massachusetts, later Secretary of State. In a letter of May 8, 1785, to Rufus King, he noted that the proposed ordinance made no provision as to navigation in the western country and said: "Water communications in that country will always be in the highest degree interesting to the inhabitants. It seems very necessary to secure freedom of navigating them to all the inhabitants of all the States." [6] On July 13, 1787, the Eighth Congress, sitting under the Articles of Confederation, adopted the famous Northwest Ordinance for the government of the Northwest Territory. It established religious freedom, guaranteed the rights of habeas corpus and trial by jury, provided for other vital liberties, and proclaimed the freedom of the waterways in these words:

"The navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of the said territory as to citizens of the United States, and those of other states that may be admitted into the Confederacy, without any tax, impost, or duty therefor" (art. IV).

The first part of the ordinance deals with certain administrative matters; the second part, articles I through VI, are by virtue of section 14 established as a solemn compact—

"It is hereby ordained and declared by the authority aforesaid, That the following articles shall be considered as articles of compact between the original States and the people and States in the said territory, and forever remain unalterable except by common consent."

Thus the guarantee of free waterways, without tax, impost, or duty is a solemn contract of equal dignity with the guarantees of religious freedom, trial by jury, and habeas corpus. It was on the motion of Thomas Jefferson that these rights were established by compact and not by mere legislation. When the First Congress under the new Constitution of the United States met in 1789, it adopted the Northwest Ordinance without change. Succeededing Congresses modified the administrative features of the ordinance but never the compact.

On May 26, 1790, the Congress extended the same "privileges, benefits, and advantages" to the inhabitants of the Southwestern Territory. This was inclusive of the same compact.

The compact under the Northwest Ordinance involves the rights of the following States: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota (east of the Mississippi River), and Pennsylvania (that part included in the Erie Purchase). The compact as extended by the Southwestern Ordinance involves the rights of the following States: Kentucky, Tennessee, and Alabama.

When the various territories, which later became States, were carved out of the Northwest Territory the terms of the Ordinance of 1787 were again incorporated. Similarly, in the organic acts of the various territories south of the Ohio River which later became States, the ordinance was incorporated. The acts of Congress admitting various States to the Union contained declarations that the navigable waters should be common highways and forever free (Louisiana, Missouri, Minnesota, California, Oregon, Ohio, Mississippi, Wisconsin, and Alabama.

Beginning with the Treaty of Peace with Great Britain of September 3, 1783, various treaties with foreign countries have contained comparable provisions. Thus, the Treaty of Guadalupe Hidalgo (1848) with Mexico prohibits taxation of navigation of the Colorado, Gila, and Bravo de Norte Rivers except by consent of both parties.[7]

When Congress began to assume direct responsibility for river and harbor improvements, it was provided in the Rivers and Harbors Act of 1882 and again in 1884 and 1909 that:

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[2] Constitution, art. I, sec. VIII, par. 1.
[3] Constitution, art. I, sec. IX, par. 6. See passim, "Documentary History of the Constitution of the United States."
[4] Constitution, art. I, sec. X, par. 3.
[5] Constitution, art. I, sec. X, par. 2.
[6] Manuscript in the Pickering Papers of the Massachusetts Historical Society collections.
[7] Webster-Ashburton Treaty of Aug. 9, 1842, United States and Great Britain; Treaty of Washington of May 8, 1878, United States and Great Britain; Gadsen Treaty of 1853, United States and Mexico.

"No tolls or operating charges whatever shall be levied or collected on any vessel, dredge, or other watercraft for passing through any lock, canal, or canalized river, or other work for the use or benefit of navigation, now belonging to the United States, or that may hereafter be acquired or constructed."

Both before and after the enactment of this general provision, whenever the United States acquired private canals or other non-Federal works of improvement, Congress provided that such canals and improvements should forever remain free from tolls.[8]

Notwithstanding various proposals in recent years for imposition of waterway tolls or charges, Congress has rigorously maintained its established position that domestic waterways shall be free. The provision of tolls for the Panama Canal and St. Lawrence Seaway, being international waterways, does not represent a departure from principle. Indeed, the Public Works Committee of the House, in recommending passage of the St. Lawrence Seaway bill, took pains to point out this distinction in these words:

"In approving the imposition of tolls as a part of this project, the committee wants it expressly understood that by such action it is not digressing from the firm and longstanding toll-free policy established with respect to inland waterways. The approval herein given is not intended to be interpreted as a precedent varying the toll-free policy since this project, being international, is clearly distinguishable from purely inland waterway facilities in the United States.[9]

This appears to be the latest congressional reaffirmation of domestic free waterways policy.

FEDERAL RESPONSIBILITY FOR WATERWAY DEVELOPMENT

The second key element of our national waterways policy is the provision of waterway improvements as a Federal responsibility. Historical research demonstrates that in every flourishing civilization since the beginning of history the vigorous prosecution by the Central Government of water resource improvement in the form of navigation, irrigation, and flood control works has been at the very heart of commercial and industrial growth and of military strength, and that the neglect of this sovereign function has heralded the decline of prosperity and power.

In the United States, the Federal policy of internal improvements, involving in its early phases construction of roads, waterway improvements and canals, was foreshadowed by an act of the First Congress in 1789, authorizing the Federal Treasury to assume the cost of lighthouses, beacons, buoys, and public piers that had been erected by the colonial governments.[10] Indeed, this early action was relied upon as a precedent in the great debates of the early 19th century on the constitutional power of Congress in the sphere of internal improvements. Thus, in the debate on a bill to make certain "surveys and estimates on the subject of roads and canals," introduced in Congress in December 1823, Congressman James W. Gazlay of Ohio argued in favor of congressional authority to build roads and canals in these terms:

"On the sea, Congress had omnipotent power. They might appropriate millions of treasure and enrich the sea and the seaboard and its inhabitants; but to the land, the interior and to its inhabitants, they could give nothing; they had no power. Could such an argument be maintained for a single moment?" [11]

At the beginning of our national life, the attention of our leaders was focused on the growth of the country—the binding together of the scattered settlements west of the mountains and the development of agriculture and industry.

At the close of the Revolutionary War, Washington began to expound the doctrine of unity and expansion. In a letter to the Marquis de Chastellux in 1783 he said he could not "but be struck by the immense diffusion and importance" of "the vast inland navigation of these United States" and, he added: "Would to God we may have the wisdom to improve them." Jefferson compared our waterways with the free public schools as "channels of communication between the States" by whose improvement "the lines of separation will disappear, their interests will be identified and their union cemented by new and indissoluble ties." [12]

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[8] 17 Stat. 560, 563; 18 Stat. 43, 44; 21 Stat. 141; 21 Stat. 180; 29 Stat. 202, 217; 40 Stat. 1275, 1277; 43 Stat. 1186.

[9] H. Rept. No. 1215, 83d Cong., 2d sess. (1954).

[10] 1 report of the President's Commission on Water Resources Policy (1950), p. 431 (hereinafter cited as the report).

[11] I. Crosskey, "Politics and the Constitution of the United States," p. 242 (1953).

[12] Sixth annual message to Congress, Dec. 2, 1806.

During the first half of the 19th century the great debates on the constitutional power of Congress in the field of internal improvements were carried on. Members from the West, like Henry Clay of Kentucky, were in the forefront of the battle for internal improvements. These men proposed policies which grew out of the needs of the Ohio Valley, for it was the agricultural surplus of that area which urgently demanded improved transport facilities and low-cost access to distant markets.[13]

In 1818, the House of Representatives first formally determined that Congress has power to appropriate money for waterways and other internal improvements by adopting a committee report as follows:

"*Resolved*, That Congress has power, under the Constitution, to appropriate money for the construction of post roads, military and other roads, and of canals, and for the improvement of water courses." [14]

In 1820, Congress appropriated funds for a survey of certain tributaries of the Mississippi and of portions of the Ohio and Mississippi Rivers.[15] In 1824 Congress authorized a survey of such roads and canals as the President might deem of national importance, together with an appropriation for removal of obstructions from the Mississippi and Ohio Rivers.[16]

The great debate on the constitutionality of internal improvements reached its climax in 1848. The occasion was a veto by President James Polk of an internal improvements bill on the grounds principally that internal improvements ought not to be made by the General Government because they would overwhelm the Treasury and because, while their burdens would be general, their benefits would be local and partial. It fell to the lot of Abraham Lincoln, then a representative of the 7th District of Illinois, to reply. He was well qualified for the responsibility reposed in him by his party. The men of the Ohio River country knew something of the importance of river transportation and of its risks and dangers. Twice Mr. Lincoln had ventured down the Mississippi in trade. He addressed himself first to the competency of Congress to practice economy in this field, noting that in a 4-year period when more than $200 million had been requested for internal improvements, the Congress had, in fact, appropriated $1,879,627.01 for such purposes. He concluded that since Congress had kept these expenditures within reasonable limits, it might be expected to continue to do so. He then answered the second objection in words, which, because of their singular appositeness in current controversies over related issues, are worthy of extensive quotation:

"Now for the second position of the message, namely, that the burdens of improvements would be general, while their benefits would be local and partial, involving an obnoxious inequality. That there is some degree of truth in this position I shall not deny. No commercial object of Government patronage can be so exclusively general, as not to be of some peculiar local advantage; but, on the other hand, nothing is so local as not to be of some general advantage. The Navy, as I understand it, was established, and is maintained, at a great annual expense, partly to be ready for war, when war shall come, but partly also, and perhaps chiefly, for the protection of our commerce on the high seas. This latter object is, for all I can see, in principle, the same as internal improvements. The driving a pirate from the track of commerce on the broad ocean, and the removing a snag from its more narrow path in the Mississippi River cannot, I think, be distinguished in principle. Each is done to save life and property, and for nothing else. The Navy, then, is the most general in its benefits of all this class of objects; and yet even the Navy is of some peculiar advantage to Charleston, Baltimore, Philadelphia, New York, and Boston, beyond what it is to the interior towns of Illinois. The next most general object I can think of, would be improvements on the Mississippi River and its tributaries. They touch 13 of our States—Pennsylvania, Virginia, Kentucky, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Illinois, Indiana, Ohio, Wisconsin, and Iowa. Now I suppose it will not be denied, that these 13 States are a little more interested in improvements on that great river than are the remaining 17. These instances of the Navy, and the Mississippi River, show clearly that there is something of local advantage in the most general objects. But the converse is also true. Nothing is so local as not to be of some general benefit. Take, for instance, the Illinois and Michigan Canal. Considered apart from its effects, it is perfectly local.

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[13] Turner, F. J., "The Frontier in American History," p. 121 (hereinafter cited as Turner).
[14] 15th Cong., 1st sess., Annuals of Congress (No. 32), vol. 15, pt. 2, pp. 1382–1384.
[15] Act of Apr. 14, 1820, 3 Stat. 562, 563.
[16] Act of May 24, 1824, 4 Stat. 32.

Every inch of it is within the State of Illinois. That canal was first opened for business last April. In a very few days we were all gratified to learn, among other things, that sugar had been carried from New Orleans, through the canal, to Buffalo in New York. This sugar took this route, doubtless because it was cheaper than the old route. Supposing the benefit in the reduction of the cost of carriage to be shared between seller and buyer, the result is, that the New Orleans merchant sold his sugar a little dearer, and the people of Buffalo sweetened their coffee a little cheaper than before; a benefit resulting from the canal, not to Illinois where the canal is, but to Louisiana and New York where it is not. In other transactions Illinois will, of course, have her share, and perhaps the larger share, too, in the benefits of the canal; but the instance of the sugar clearly shows that the benefits of an improvement are by no means confined to the particular locality of the improvement itself.

"The just conclusion from all this is, that if the Nation refuse to make improvements of the more general kind, because their benefits may be somewhat local, a State may, for the same reason, refuse to make an improvement of a local kind, because its benefits may be somewhat general. A State may well say to the Nation, 'If you will do nothing for me, I will do nothing for you.' Thus it is seen, that if this argument of inequality is sufficient anywhere, it is sufficient everywhere, and puts an end to improvements altogether. I hope and believe, that if both the Nation and the States would, in good faith, in their respective spheres, do what they could in the way of improvements, what of inequality might be produced in one place might be compensated in another, and that the sum of the whole might not be very unequal. But suppose, after all, there should be some degree of inequality: inequality is certainly never to be embraced for its own sake; but is every good thing to be discarded which may be inseparably connected with some degree of it? If so, we must discard all government. This Capitol is built at the public expense, for the public benefit; but does anyone doubt that it is of some peculiar local advantage to the property holders and business people of Washington? Shall we remove it for this reason? And if so, where shall we set it down, and be free from the difficulty? To make sure of our object, shall we locate it nowhere? And have Congress hereafter to hold its sessions, as the loafer lodged, 'in spots about?' I make no special allusion to the present President when I say, there are few stronger cases in this world of 'burden to the many, and benefit to the few'—of inequality—than the Presidency itself is by some thought to be. An honest laborer digs coal at about 70 cents a day, while the President digs abstractions at about $70 a day. The coal is clearly worth more than the abstractions, and yet what a monstrous inequality in the prices. Does the President, for this reason, propose to abolish the Presidency? He does not, and he ought not. The true rule, in determining to embrace or reject anything, is not whether it have any evil in it, but whether it have more of evil than of good. There are few things wholly evil or wholly good. Almost everything, especially of governmental policy, is an inseparable compound of the two; so that our best judgment of the preponderance between them is continually demanded. On this principle, the President, his friends, and the world generally, act on most subjects. Why not apply it, then, upon this question? Why, as to improvements, magnify the evil, and stoutly refuse to see any good in them?"

We have, for purposes of convenience, treated separately the development of the closely related policies of free waterways and Federal improvement. In the minds of their proponents they were, of course, integrally related. Thus, in his first message to Congress on December 8, 1829, President Andrew Jackson said:

"Every member of the Union in peace and in war, will be benefited by the improvement of internal navigation and the construction of highways in the several States."

And in his second annual message on December 6, 1830, he said:

"All improvements effected by the funds of the Nation for general use should be open to all our fellow citizens exempt from the payment of tolls or any imposition of that character."

In a message to Congress dated June 11, 1844, President Tyler summed up the accepted doctrine in these terms:

"It (the Mississippi River) belongs to no particular State or group of States, but of common right, by express reservation, to all the States. It is reserved as a great common highway for the commerce of the whole country * * *. Whether levies upon commerce were made by a foreign or a domestic government would have been equally burdensome and objectionable. The United States

therefore is charged with its improvement for the benefit of all, and the appropriation of governmental means for its improvement becomes indispensably necessary for the good of all."

Throughout the first 75 years of our national life, Congress pursued a policy of fostering trade and commerce in the interests of national expansion and development. Our sphere of interest is, of course, limited to those aspects of that broad policy relating to the development of our waterways. In that sphere we may conclude that the doctrine of free waterways improved and maintained as a sovereign responsibility of the National Government became firmly entrenched during those critical years and contributed significantly to the expansion and unification of the Nation, to the form of the national economy, and the pattern of community and population growth. As Turner says:

"Our own internal commerce carried in our own ships has had a vaster influence on our national life than has our foreign commerce. And this internal commerce was at first and for many years the commerce of the Ohio Valley carried by way of the Mississippi." [17]

* * *

"After the War of 1812, the steamboat revolutionized the transportation facilities of the Mississippi Valley. In each economic area a surplus formed, demanding an outlet and demanding returns in manufactures * * *. At the same time the great river and its affluents became the highway of a commerce that reached the West Indies, the Atlantic coast, Europe and South America. The Mississippi Valley was an industrial entity, from Pittsburgh and Santa Fe to New Orleans. It became the most important influence in American politics and industry." [18]

Through the 1880's and 1890's public opinion throughout the Middle West and the South was developing in support of an expanded policy of waterways improvement. The public mind was spoken by President Theodore Roosevelt in 1907 at Memphis, Tenn., when he said:

"* * * (the Mississippi Valley) being literally the heart of the United States, all that concerns its welfare must concern likewise the whole country. Therefore, the Mississippi River and its tributaries ought by all means to be utilized to their utmost possibility. Facility of cheap transportation is an essental in our modern civilization and we cannot afford any longer to neglect the great highways which nature has provided for us. These natural highways, the waterways, can never be monopolized by any corporation. They belong to all the people, and it is the power of no one to take them away. Year by year transportation problems become more acute and the time has come when the rivers really fit to serve as arteries of trade should be provided with channels deep enough and wide enough to make the investment of the necessary money profitable to the public. The National Government should undertake this work."

The following year, (1908) with characteristic spirit Roosevelt placed the challenge before Congress:

"The time for playing with our waterways is past. The country demands results." [19]

Taft, and subsequent Presidents, were of like mind. The Congress fully concurred.

The key to the achievement of these great aims of public policy lay in the establishment of minimum stable depths for year-round navigation.

Although some canalization work was authorized and begun before the turn of the century, the major public effort began for all practical purposes shortly before the First World War. The war showed the vital importance of adequate inland waterway transport as a part of the national defense establishment and postwar increases in overland transport costs intensified the public demand for efficient low-cost inland water transportation.

The period between the two World Wars saw major advances in channel improvement projects on the Ohio, the upper Mississippi, the Warrior-Tombigbee, the Illinois Waterway, the Tennessee, the Intracoastal Canal, various Atlantic coastal rivers, and the Sacramento and Columbia Rivers on the Pacific Coast. All work has suspended during World War II. But it was during the critical years of that war that the true value of inland navigation facilities was demonstrated beyond a shadow of a doubt.

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[17] Turner, p. 171.
[18] Turner, pp. 194–195.
[19] Special message of Dec. 8, 1907.

As President Truman's Water Resources Policy Commission said in its 1950 report:

"The service rendered by inland waterway transportation during World War II demonstrated conclusively that it is of vital importance to national defense. Its performance in contributing to the winning of the war more than justified the confidence of Congress in the Corps of Engineers waterway improvement program prosecuted for and sponsored by the people, and more than repaid the Federal Government for all the expenditures of public funds for that program." [20]

Decisions with regard to waterway improvements are directed toward objectives of broad national policy such as national defense, economic stabilization, or the needs of agriculture. These considerations are separate from and in addition to the purposes associated with navigation in multipurpose projects such as flood control, hydroelectric power, water supply, reclamation, soil conservation, fish and wildlife, recreation, and other functions, which also have a recognized role in regional development, economic stabilization, national defense and other general public purposes.

The record shows that national defense considerations may dictate waterway improvements or influence their timing and scope. Reference has been made above to the tribute paid by President Truman's Water Resources Policy Commission to the World War II performance of the inland waterways. Various statements by recent Presidents confirm the recognition of the defense importance of waterway development.[21]

Similarly, considerations of broad public policy—stimulation of employment through public works to avert or alleviate economic depressions, regional development as in the case of the Missouri River Basin, the particular needs of industry or agriculture or of the federally owned atomic energy plants for steam-generated electric power—may be of decisive weight in the acts of Congress to appropriate public funds for waterway improvement.[22]

Such considerations of public policy have always influenced the timing and extent of expenditures for waterways and other internal improvements. Such improvements have been undertaken for the benefit of the general public and are conceived and executed in the national interest and to serve various purposes of the broadest national import. The commercial interest of those actually using the waterways has never been regarded as a factor of significance in determining national policy in this regard.

Such have been the underlying principles and purposes of our national waterways policy. The soundness and success of this policy have been abundantly demonstrated by recent studies of the benefits of free waterways development and of the broad diffusion of these benefits throughout the national community.

A recent appraisal of waterways development is set forth in the report,[23] dated March 25, 1957, of the Senate Public Works Committee. This report

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[20] 1 Rept. 424.

[21] Letter of Oct. 27, 1941, from President Franklin D. Roosevelt to Hon. Dewey Short, president of the National Rivers and Harbors Congress, "The importance of our harbors and coastal and inland waterways in strengthening the Nation's transportation system to meet the increasing demands of the defense program is conspicuously demonstrated"; letter dated Feb. 10, 1942, from President Franklin D. Roosevelt to Hon. J. J. Mansfield, chairman of the House Committee on Rivers and Harbors, "Certain waterway improvements for navigation and power production are especially desirable for the transportation and production of war materials"; President Harry S. Truman's budget message of Jan. 9, 1953, "Construction of navigation facilities by the Corps of Engineers is limited in this budget to projects already underway, and to those which should not be deferred any longer, in view of national defense requirements or essential civilian needs"; President Dwight D. Eisenhower's budget message of Jan. 21, 1954, "These projects have been selected on the basis of assuring expeditious movement of traffic in existing harbors and waterways serving important requirements of commerce or national security."

[22] Calvin Coolidge in his fourth annual message to Congress, Dec. 7, 1926, "The large Federal expenditures in improvement of waterways and highways in all comprise a great series of governmental actions in the advancement of the special interest of agriculture"; President Franklin D. Roosevelt's letter of Feb. 10, 1942, to Hon. J. J. Mansfield, recommending waterway improvements legislation "in the interest of national security and stabilization of employment"; Herbert Hoover, speech as Secretary of Commerce, Nov. 14, 1927, "I am concerned with this improvement (of inland waterways) because it will contribute to the wealth and economic progress of every section of the Union"; Harry S. Truman, annual message, Jan. 21, 1946, "The rivers of America offer a great opportunity to our generation in the management of the national wealth. * * * These great developmental projects will open the frontiers of agriculture, industry, and commerce. The employment opportunities thus afforded, will also go far to ease the transition from war to peace"; Dwight D. Eisenhower, state of the Union message, Jan. 6, 1955, "But public works activities are closely interrelated and have a substantial influence on the growth of the country. Moreover, in times of threatening economic contraction, they may become a valuable sustaining force."

[23] S. Rept. 168, 85th Cong., 1st sess.

emphasized the benefits of improved waterways in savings of transportation costs, their importance for the growth and development of the interior sectors of this country and the wide diffusion of the benefits of low-cost distribution over almost the entire Nation. The significance of port improvements for national and internal commerce was recognized; and the smaller ports were described as playing a vital part in the economic life of the country. Their importance to the fishing industry and as harbors of refuge was noted.

In 1955, the U.S. Army Engineers prepared and submitted to a subcommittee of the Public Works Committee of the Senate (84th Cong., 1st sess.) on bills S. 414, 524, and 1069, various data regarding Corps of Engineers programs including a tabulation of benefit-cost ratios for 12 major active inland and intracoastal waterways in the United States. These calculations were based upon 1953 tonnages and costs. Tonnages have increased sharly on these waterways in the ensuing years and although costs have risen, the increase has not been proportionately as high as traffic growth. Consequently, the indicated public returns, while very impressive, are not as great as those which current conditions would reflect.

The figures of the Engineers showed that annual savings of $391,800,000 on these 12 waterways exceeded annual charges of $55,800,000 by $336 million, or sevenfold. Amortization charges include interest. Consequently, the public recovered seven times within the year its total annual costs with interest. Moreover, net savings for the single year were nearly half of the aggregate first costs of the improvements. These data indicate that there were few investments so profitable to the community as funds invested in improvement and operation of the waterways.

It is in the light of this record that the concentration of the American communities around the waterway systems has proven a persistent feature of our geographical growth. The simple and conclusive fact is that 94 percent of the U.S. population resides in the 38 States having access to water transportation. Two-thirds of the Nation's entire population reside in counties at least half of whose area lies within 50 miles of navigable water. The 21 largest cities of the country are situated directly on the water, where they can be served by inland or seagoing vessels.

Still another authoritative report establishes the wide diffusion of these benefits throughout all sectors and regions of the economy. I refer to a recent study by Dr. Joseph R. Hartley of Indiana University. It is entitled "The Economic Effects of Ohio River Navigation." This is a carefully documented analysis of the nature of the public values and the diffusion of benefits provided by the federally improved Ohio River. We present copies for the committee's files and commend it to your thoughtful consideration. A few of Dr. Hartley's conclusions are set forth in appendix 1.

It is clear from Dr. Hartley's study that the general public is the true beneficiary of the Federal investment in Ohio River improvement. Given the orientation of our population toward the waterways and the demonstrated financial soundness of Federal investments in improvement of our principal waterway systems, it seems clear that the benefits of low-cost water transport made possible by federally provided facilities have achieved immense proportions and are widely diffused throughout the economy. Dr. Hartley's study fully demonstrates also the value of waterway improvements in the field of regional development and depressed area rehabilitation. I suppose there would be no serious dissent from the proposition that waterway improvements, like other public work for internal improvement, can and do play a significant part in economic stabilization.[24]

It is respectfully submitted that waterway improvements are today—as they have always been regarded—"not local in their benefit" but "universal in promoting the prosperity of the Nation." These words were spoken by then President Herbert Hoover at the dedication of the completed Ohio River canalization project in October 1929. They are in marked contrast to the conclusion of the Hoover Commission's water resource and power task force in 1955, that the beneficiaries of waterway improvements are "a comparatively limited number of shippers."

Among the important public benefits, that of the national defense deserves especial emphasis. The record of performance adequately supports the conclu-

[24] Cf. President Eisenhower's state of the Union message, Jan. 6, 1955, recognizing contribution of public works to national growth and their value as a sustaining force in times of economic contraction.

sion that improved inland waterways and a modern barge fleet are a major factor to the Nation's security. This is true in terms of plant dispersion policy since improved waterways encourage distribution of defense industry throughout the relatively protected interior of the country, as distinguished from more vulnerable coastal points. In the present age of ballistic missiles and nuclear war, the dispersion of strategic industries throughout the interior of the country becomes particularly crucial to the Nation's continuing retaliatory and defense potential following initial attack. It is true also in terms of conservation of scarce materials.[25] The consumption of fuel, steel, and manpower to move a variety of materials on the waterways is less than that of any other mode of transportation for the tonnage handled, and the consumption of strategic nonferrous metals is negligible. Moreover, the flexibility and multiplicity of units of the barge fleet, render it less vulnerable than fixed installations such as pipelines dependent generally upon fixed facilities at each end of the line.[26] Protected routes immune from submarine attack, which were of transcendent importance during World War II, may again be of major significance.

It is submitted that waterway improvements are now—as they have always been regarded—effective instruments for the attainment of broad objectives of national policy and that the national defense occupies a paramount position among these objectives.

THE IMPORTANCE OF WATERWAY IMPROVEMENTS FOR THE FUTURE

Our discussion has shown that the American free waterways policy has been a vital element in our national development. The fact that America is today essentially one market to which goods move freely from all parts of the Nation is due in large part to the persistent application by the Congress of this policy.

Our waterways policy has operated as a stimulus to industrial growth and in the creation of employment opportunities. Attracted by low-cost modern barge service for mass transportation and under the further stimulus of abundant supplies of fresh water for processing, industry in the postwar period of rising overland transport costs has literally flocked to the shores of our improved inland waterways. Important new industrial installations have sprung up where none existed before to bring new employment opportunities and prosperity to regions which have for many years been chronically depressed. On the Gulf-Intracoastal Waterway, the Mississippi, the Warrior-Tombigbee, the Ohio and its great tributaries—the Tennessee, the Cumberland, the Monongahela, the Kanawha—and many others, we are witnessing one of the greatest industrial booms in modern history. Farm marketing organizations and other grain shippers seeking reduced transport costs and higher realizations for the farmer are making greatly increased use of efficient inland waterway transportation, not only for grain but for feed, fertilizer and equipment.

The success of our established policy in the past argues strongly for its continuance in the future. Indeed, available evidence is conclusive that the importance of our established policy will increase and not diminish in the years ahead.

It is a commonplace that we are entering a period of explosive population growth. As shown by table I, the Bureau of the Census estimates that the labor force will be increasing at the rate of about 1 million workers per year during the period 1955 to 1965; but that from 1965 to 1975 the rate of increase will be approximately 1,500,000 annually. As compared with a labor force estimated at 73,550,000 for 1960, that for 1975 is estimated at 94,775,000. The investment in plant, property, and equipment per production worker in the metal working and metal industries for the year 1957 is estimated at $5,945. This industrial grouping is regarded as a conservative mean for basic industry. This figure compares with an investment of $2,114 per production worker during the 1947–49 period. Even on the conservative assumption of an investment of $6,000 per production worker for the period 1965 to 1975, an annual investment of $9 billion will be required just to provide for the 1,500,000 annual addition to the labor force expected during that period. As shown by table II, the National Industrial Conference Board has estimated (in dollars of 1954 purchasing power) that by 1965 the Nation will require a gross private domestic investment of $71.2 billion in a single year to support our growing population at rising standards of living and to provide jobs for the expected annual increment to the labor force. In 1975, private investment will have to be $95.4 billion.

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[25] 1 Rept. 210.

[26] Report of the National Petroleum Council's Committee on Oil and Gas Emergency Defense Organization (July 15, 1954).

Powerful and effective action to stimulate private investment is a simple imperative if we are to achieve our full potentials of economic growth and employment opportunity.

The effectiveness of improved waterways in providing an important stimulus to capital investment is dramatically illustrated by the experience of the Ohio Valley. A survey prepared by the Ohio Valley Improvement Association shows that since January 1, 1950, an investment of approximately $15 billion in new and expanded plant facilities has been made or announced in the counties bordering the Ohio River and its navigable tributaries. The dominant factors influencing this remarkable expansion have been low-cost water transport and abundant water supply provided by the Ohio River system.

We may, I think, take it as a datum that the policy of the Employment Act of 1946 is central to our economic development for the next generation. Under that act it is the obligation of the National Government to use all its powers in order to create and maintain "conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing and seeking to work, and to promote maximum employment, production and purchasing power." This goal is to be sought, the act commands, in ways which foster and promote free competitive enterprise.

It is evident that all appropriate governmental means will be required to carry out this policy. Clearly, the vigorous prosecution of waterways improvement—in accordance with principles of demonstrated effectiveness in stimulating economic growth—will be called for as an integral part of the national effort.

The utility of the free waterways policy as a stimulus to economic growth is enhanced by its inherently counterinflationary character. Soundly conceived and executed waterway improvements reduce the delivered cost of basic raw materials and fuels, as well as other industrial commodities which are incorporated into a limitless variety of consumer goods destined for retail outlets in all areas of the Nation. Many economists have been concerned with the long-range inflationary tendencies operating in our economy. Our free waterways policy, courageously applied, is an instrument of broadcast effectiveness in minimizing these tendencies both by reducing costs and encouraging growth.

The rapid expansion and modernization of industries abroad pose a critical challenge to the American economy—that of minimizing costs of production and transportation to maintain our competitive strength, not only in foreign markets, but in our own domestic markets as well. The recent loss of sales in Latin America and the rising volume of imports into this country associated with industrial progress in such areas as Japan, the European Economic Community and the Soviet Union are illustrative of a cumulative process which must be arrested if American industry is to prosper and grow. No policy of Government is more fundamental to our continued industrial growth and the advancement of efficiency than that of water resource development for navigation, flood control, and water supply.

Dr. Hartley's report has called attention to the important role of the improved Ohio River in creating new job opportunities for the population of areas which have been chronically depressed. In the Ohio and Mississippi Valleys and along the gulf coast, extensive regions would be subject to serious economic stagnation and unemployment were it not for the industrial growth generated by waterway transportation. In the future we may reasonably expect that rapid technological advance and resulting industrial obsolescence will tend to aggravate the depressed area problem. Such adverse changes may well occur more rapidly than in the past with less opportunity for adjustment. Thus, community rehabilitation promises to become an even more urgent problem in the future and waterway development therefore more essential. We may expect a growing need for expanded employment opportunities in new industries for workers made idle by technological factors.

If the stimulus of waterway improvement is not available, the problems of depressed areas must increasingly by met by population shifts with all their attendant social costs in human distress and societal friction, and by direct relief with attendant impairment of human dignity and self-reliance. In a modern society, the solutions for these problems should be sought by providing opportunities for productive work—not by a dole or a "make work" type of employment.

The continued policy of waterways improvement becomes even more essential as we move into a new era of unprecedented magnitudes of waterway traffic. Indeed, in many areas substantial acceleration of the improvement program is

urgently needed. In 1947, the inland waterways, exclusive of the Great Lakes and ocean harbors, carried approximately 34.5 billion ton-miles of freight. Ten years later the system handled about 115 billion ton-miles, a growth of 80 billion in 10 years. On the conservative assumption of a continued growth averaging 8 billion ton-miles per year, by 1980, about 300 billion ton-miles of freight will be moving by water. This prospect for vast growth counsels an accelerated program of waterway improvement and modernization.

Quite obviously the existing navigation system cannot sustain the volumes projected for the fuutre. Already, many of our navigation facilities are inadequate for the needs of modern traffic. Professor Barloon's statement submitted to this committee demonstrates that the Ohio is rapidly approaching its capacity. Similar inadequacies are already discouraging future growth on such rivers as the Warrior-Tombigbee and the Monongahela. Fortunately, the Congress of the United United States has inaugurated modernization programs on several of these streams. But they must be pushed to early completion. In other areas, such as the Arkansas Valley, programs of development are underway and should be expedited. But the needs of the future will compel new undertakings of major scope and national importance.

As a general proposition, the future will surely demand that all our navigable streams, where the investment can be justified on the basis of standards approved by Congress, must be improved and developed, together with connecting channels and extensions of existing systems. Nor is there any doubt that the larger, deeper draft vessels now in use on the high seas will necessitate major works of ocean harbor improvement. The future needs of the Great Lakes for deeper harbors and connecting channels resulting from the St. Lawrence Seaway development are already clearly foreshadowed.

With the continued growth in waterway transportation, carriage by other modes, including, notably, railroads, may be expected to flourish even more in the future than it has in the past. Contrary to popular supposition, river valley railroads appear to be notable beneficiaries of industrial development stimulated by federally provided waterway improvement. Industries relying on waterway transportation for the movement of basic raw materials generate a large volume of rail traffic in high rated finished goods and operating supplies. This is confirmed by the postwar experience of the eight major railroads serving the Ohio and Mississippi Valleys. The volume of freight hauled by these railroads has gained consistently on the national average of all class I railroads, having increased by 23 percent from 1946 to 1957, while the national average went up only 4 percent.

The high value of goods moved by rail, in consequence of water-induced industrial development, is reflected in especially favorable rail revenues. This, likewise, is confirmed by the postwar experience of the river valley railroads. While the freight revenues of all the class I railroads in the country went up by 54 percent from 1946 to 1957, that of the eight major railroads of the Ohio and Mississippi Valleys increased by 75 percent. Waterway development shows every evidence of being a basic stimulus to a more rapid expansion of railroad freight traffic.

The beneficial effects of waterway development on railway freight may be even greater in the future than has been true in the past. Alert railway managements are taking advantage of major new technologies to reduce operating costs and improve service. Notable among these are the almost complete dieselization of the railway system, the installation of electronic classification yards, and centralized traffic control, greatly increasing the appeal of railway shipment. At the same time, a new spirit of cooperation with water carriers is coming into evidence, especially in the form of joint rate and service arrangements for traffic interchange of maximum benefit to the shipper. Waterway improvement policy is thus highly consistent with the long-run welfare of the Nation's railroads and an integrated transportation system. The essential nature of this relationship was well expressed by President Herbert Hoover in a speech given at Louisville, Ky., in October 1929:

"And the new waterways are not competitive but complementary to our great and efficient railways. It is the history of transportation that an increase of facilities and a cheapening of transportation increases the volume of traffic."

America faces a future which insistently demands the full utilization of her resources. We must strengthen the public sector of our economy.[37] Pressures

[37] Galbraith, John Kenneth, "The Affluent Society," Houghton-Mifflin Co., Boston, 1958, passim.

on existing public facilities—schools, hospitals, highways, and water and land resources—are mounting steadily. Even if we were not concerned with these matters for the well-being of our people, the challenge of the Communist world, where, as Senator Allen Ellender has so clearly shown, resources are increasingly devoted to the development of public facilities,[28] compels our most urgent attention to them in a competition of global significance.

If our history is any guide to the future, we will meet these great challenges with resolution and boldness.

THE USER CHARGE PROPOSAL

Because the proposal for a user charge on the inland waterways may come before the Congress at one time or another in the future, it appears especially important to make clear that the imposition of waterway tolls or user charges would be highly destructive to sound water resources development. I should like, first, to describe the present status of proposals to institute user charges.

The railroads have been advocating such measures for many years and the matter has been studied from time to time within the executive branch and by committees of Congress.[29]

Early in 1952, a bill (S. 2743) was introduced in the Senate under railroad sponsorship. It provided for imposition of user charges on the improved inland waterways sufficient in amount to recover all costs of providing, maintaining, and operating the improvements made in aid of navigation. Great Lakes and connecting channels as well as waterways used to a substantial extent by ocean-going vessels in foreign commerce were excepted. The Interstate Commerce Commission was authorized to prescribe the charges. The bill died in committee. Testimony introduced regarding it is published in hearings before the Committee on Interstate and Foreign Commerce, U.S. Senate, 82d Congress, 2d session, on bills relative to domestic land and water transportation, March 3 to April 9, 1952.

The report on water resources and power of the second Hoover Commission[30] issued in June 1955 contained what I believe to be the first unqualified recommendation for waterway tolls or user charges ever issued by a public body in this country.

Shortly after the issuance of this report, a Special Subcommittee on Water Resources and Power, under the chairmanship of Congressman Robert E. Jones of Alabama, was appointed by the House Committee on Government Operations to hold hearings on the Commission's water resources and power report. Extensive hearings were held and the specific issue posed by Recommendation 8 on waterway user charges was the subject of considerable testimony. The views of representatives of a broad cross section of Ohio Valley interests were presented at the hearings held in Cincinnati on November 9 and 10, 1955.[31]

Because of the wide range of interests testifying at that time, this testimony is, in my judgment, a significant part of the literature on the waterway user charge question. For the convenience of the select committee we present for its files copies of the Jones committee print of this testimony.

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[28] Report on Overseas Operations of U.S. Government, S. Doc. 31, 85th Cong., 1st sess., pp. 913; supplemental memorandum of the chairman to members of the Senate Committee on Interior and Insular Affairs, together with an addendum from Hon. Allen J. Ellender, of Louisiana, committee print No. 2, Committee on Interior and Insular Affairs, Feb. 17, 1958; S. Doc. 78, 85th Cong., 2d sess.

[29] Some of the better known published studies dealing with this question are:

(*a*) Federal Coordinator of Transportation, "Public Aids," vol. III (1939);

(*b*) Board of Investigation and Research, "Public Aids to Domestic Transportation" (1945) H. Doc. 159, 79th Cong., 1st sess.;

(*c*) The President's Water Resources Policy Commission, "A Water Policy for the American People" (1950);

(*d*) S. Res. 50, "Domestic Land and Water Transportation," hearings before the subcommittee of the Senate Committee on Interstate and Foreign Commerce (1950) and progress report, S. Rept. 1039, 82d Cong., 1st sess. (1951);

(*e*) Report of the Commission on Organization of the Executive Branch of the Government (second Hoover Commission, Water Resources and Power, June 1955, and accompanying task force report on water resources and power).

[30] Recommendation 8 is as follows: "That Congress authorize a user charge on inland waterways except for smaller pleasure craft, sufficient to cover maintenance and operation, and authorize the Interstate Commerce Commission to fix such charges." Note also dissents of Commissioners Herbert Brownell, Jr. (Attorney General), Arthur S. Flemming (Director of the Office of Defense Mobilization), and Chet Holifield (Congressman from California).

[31] Hearings before a special subcommittee of the Committee on Government Operations, House of Representatives, 84th Cong., 1st sess., Nov. 9 and 10, 1955.

No legislation has as yet been introduced to implement the waterway user charge recommendation of the Hoover Commission. In November 1957, however, pursuant to a directive of the Bureau of the Budget,[32] Louis S. Rothschild, then Under Secretary of Commerce for Transportation, announced that the Department had under study the question of whether or not the Government should impose charges for the use of federally provided navigation facilities on inland waterways. He stated further that the study was "intended primarily to provide a basis for consideration of further administration action with respect to recommendation 8 of the Hoover Commission Report on Water Resources and Power. * * *"[33]

The Department of Commerce has recently completed this study. Its report has not been made public. The matter is now receiving further consideration in the Bureau of the Budget.

We understand that the Department of Commerce is giving further consideration to this matter as a part of its overall study of national transportation policy. It is reported that the director of this study has recommended to the Under Secretary of Commerce legislation to establish a system of waterway user charges in the form of a fuel tax. At the time of this writing it is not known whether or not this recommendation will be adopted by the administration. It is believed that the question is also receiving attention by the Senate Interstate and Foreign Commerce under Senate Res. 29 of the 86th Congress, 1st session.

While the question of user charges cannot be considered apart from national transportation policy, at the same time this question is of vital significance to water resource development. The imposition of a user charge would be a direct repudiation of our established free waterways policy and would involve a drastic change in our basic approach to the problem of water resource development.

In the absence of a current specific proposal having official standing, our comments on the user charge issue as applied to the waterways must be limited to matters of general principle. To illustrate certain points, however, I shall base my comments on the recommendation of the Second Hoover Commission that a charge be authorized on inland waterways, except for smaller pleasure craft, sufficient to cover operation and maintenance.

WASTEFUL ALLOCATION OF RESOURCES UNDER THE USER CHARGE PROPOSAL

One of the central contentions of those who advocate waterway user charges is that such charges would provide a yardstick for economically correct allocation of resources.[34] Many instances could be cited. For example, the Second Hoover Commission stated that a user charge (sufficient to recover operation and maintenance costs) "would quickly demonstrate which waterways have become an obsolete service and thus indicate those where the cost of maintenance and operation could be eliminated." This view is a gross misconception. The waterway user charge would, in fact, lead to a seriously faulty allocation of the Nation's resources and the waste and destruction of important national assets.

INCORRECT ALLOCATION OF RESOURCES

Under the user charge proposal, project evaluations would be made in commercial terms. The marketability of the service would determine the feasibility of the project.[35] If the estimated revenues from user charges over the life of the project would recover total costs of construction, operation and maintenance, amortization and interest, then presumably the project would be built, otherwise not. This would involve estimates as to the amount of traffic which would move in competition with alternative transport services. In estimating the rates of alternative transport services, it would, of course, be necessary to recognize the pervasive fact of "water compelled rates" in the railroad rate structure. Such rates customarily reflect less than the fully distributed costs of the railroad service. Thus, the waterway project would be judged

[32] Bureau of the Budget, bulletin 58–3, Nov. 13, 1957.
[33] U.S. Department of Commerce press release, Nov. 27, 1957.
[34] Testimony of Gregory S. Prince, assistant general counsel, Association of American Railroads, hearings before the subcommittee of the Senate Committee on Interstate and Foreign Commerce, 82d Cong., 2d sess., Mar. 3 to Apr. 9, 1952, p. 1371, et seq.
[35] Musgrave, Richard A., "The Theory of Public Finance" (1959, 1st ed., McGraw-Hill, p. 62.

on anticipated rates high enough to cover total costs in competition with rail carriage covering only partial costs.

Our studies show that in 1955, of 257 commodity groups carried by the railroads, for example, 80 yielded revenues which were insufficient to cover their costs. Indeed, 32 of these failed to cover even their out-of-pocket costs. Under the existing rail rate structure, the resulting losses are made up by higher rates on noncompetitive movements. Thus, in 1955, of a total of 257 commodity groups, 64 were assessed rates so high that they yielded more than 150 percent of fully distributed costs, and on 9 commodity groups, more than 200 percent.

In 1955, the Presidential Advisory Committee on Transport Policy and Organization favored changes in the present law which would permit the railroads to cut rates to out-of-pocket levels on competitive traffic even more freely than at present. This trend in transportation policy is notable in recent decisions of the Interstate Commerce Commission. The Transportation Act of 1958 has evidently encouraged the railroads to move still further in the direction of competitive rate cutting. It is outside our present purpose to express any opinion on the desirability of this tendency. We simply underscore the fact that in any realistic estimate of waterway user charge revenues, it must be assumed that competing rail rates will not reflect fully distributed costs. Yet, recoveries on the waterway project will be expected to do so.

In essence the user charge proposal means that in determining whether a particular waterway improvement shall be made or maintained, the full economic costs, both public and private, of the waterway improvement and related water transport service, will be compared with something less—indeed, significantly less—than the full economic costs of the alternative service.

Clearly any sound policy of resource allocation involving the investment of Government funds demands that full economic costs of the alternatives be compared. Such a comparison of full economic costs involving labor, capital, minerals, and soils is an essential element in assuring the wise use of the Nation's resources. The Congress of the United States, therefore, has long availed itself of the benefit-cost ratio analysis technique in appraising water resource projects for investment of public funds. Of course, other important public policy questions are considered in project evaluation, especially in regard to timing where questions of national security, economic stabilization and other issues of broad public welfare may be decisive. But the benefit-cost ratio is, as it should be, the basic datum of economic justification.

The application of that technique in evaluation of waterway projects is essentially a comparison of full economic costs, conscientiously estimated, and sound in its approach. The rates of the cheapest alternative mode of transportation are taken, as they would be without the waterway improvement, as the closest practicable approximation of the fully distributed cost of this mode, not the partial cost coverage of water-depressed rates. These are then compared with full costs of water carriage, including the total costs of the proposed improvement to the Government—amortization, interest, operation, and maintenance. Full costs are compared with full costs.

In contrast, the user charge proposal, for the reasons stated, would compare only partial cost of the alternative mode of transport with full economic costs of the waterway improvement and related transport service. Such a method of resource allocation is inherently unsound and could not fail to result in the waste of national resources. It would inevitably mean that many sound projects would not be built; that many sound existing projects would be abandoned and the public deprived of important values and benefits. It would mean also that funds would be channeled instead into inherently less desirable alternatives, to the long-range detriment to the national economy. The Nation, confronted as it will be with tremendous demands upon its resources in the critical years ahead, cannot afford to waste its assets; we must insist upon sound criteria for the optimum utilization of our resources. The user charge approach, with its deceptive plausibility, is calculated to lead us into grave and costly error.

AS A YARDSTICK DEVICE, USER CHARGES MUST BE ON INDIVIDUAL PROJECT BASES

A second and independent defect of the user charge as a commercial yardstick is that to have even the semblance of an evaluation device, it must be strictly applied to individual projects or integrated groups of projects. The improvements, for example, in the Ohio-Mississippi River system have been constructed at various times, under a great variety of cost conditions. Traffic

varies greatly on different segments of the main streams and their tributaries. The present locks and dams on the Ohio River were constructed over a period of some 40 years. Traffic through the different reaches of the river ranges from as little as 13 million tons to as much as 24 million tons annually. The replacement facilities now under construction on the main stream of the Ohio are individually authorized, based upon their separate benefit-cost ratios and those display a considerable variation.

In order, therefore, that a system of user charges would provide any relevant information as to the commercial merit of a particular project, charges would have to be determined specifically with regard to the costs and traffic volumes applicable to that project in isolation from other improvements in the related river system. The contrast between the inland waterways generally and such unified projects as the St. Lawrence Seaway and the Panama Canal will be readily apparent. This is another cogent reason why the canal and the seaway have little value as precedents for tolls on domestic water commerce.

Indeed, the entire character of user charges as a device of project evaluation is lost if averaging as between projects is permitted. Thus, proposals for imposition of user charges in the form of fuel taxes or in the form of ton-mile charges uniform for whole river systems are, in fact, nothing more than excise taxes. As such, they may be imposed for general revenue purposes, to discourage use or to benefit one form of transportation at the expense of another. But they will convey no information whatever for purposes of resource allocation.

This matter is succinctly summarized by Richard A. Musgrave, professor of economics at the University of Michigan, in his recent book, "The Theory of Public Finance"[36] as follows:

"The extent to which a gasoline tax will serve as an approximation to benefit taxation depends upon the degree of correspondence between the cost of highway services incurred on particular stretches of road and the taxes collected on gasoline consumed while traveling over these stretches. Where such correspondence is weak, for example, downstate taxes go to finance upstate roads, the gasoline tax approach has little merit on benefit grounds. Taxation of highway users in one region to pay for highway facilities in another may be further removed from benefit taxation than finance by general revenue. Benefit taxation relates to costs and benefits for the individual. It cannot be replaced by a concept of group equity." (P. 177.)

Reduced to practical terms, this would seem to mean that averaging of costs will cast the burdens of less desirable projects upon projects which are sound and render economic justification impossible.[37]

USER CHARGES ON INDIVIDUAL PROJECTS IMPRACTICABLE

It will be clear, on the other hand, that a variety of toll rates reflecting the differing costs of projects, would create competitive chaos. The situation would be comparable to a railroad rate pattern reflecting varying right-of-way costs over particular segments of the line. The problems of industrial dislocation (which will be discussed below) are sufficiently serious without the fantastic complications which would inevitably follow from strict application of benefit-taxation principles. Yet compromise of those principles in the interest of simplicity or preservation of competitive relationships necessarily means that the so-called user charge will have no value as a yardstick for purposes of resource allocation.

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[36] See footnote 35 supra.

[37] See speech of Abraham Lincoln, Representative of the Seventh District of Illinois, in the House of Representatives,, June 20, 1848, replying to President James K. Polk's message vetoing an internal improvements bill:

"Mr. Chairman, the President seems to think that enough may be done in the way of improvements, by means of tonnage duties, under State authority, with the consent of the general Government. Now, I suppose this matter of tonnage duties is well enough in its own sphere. I suppose it may be efficient, and perhaps sufficient, to make slight improvements and repairs in harbors already in use and not much out of repair. But if I have any correct general idea of it, it must be wholly inefficient for any generally beneficent purposes of improvement. I know very little, or rather nothing at all, of the practical matter of levying and collecting tonnage duties; but I suppose one of its principles must be, to lay a duty, for the improvement of any particular harbor, upon the tonnage coming into that harbor. To do otherwise—to collect money in one harbor to be expended on improvements in another—would be an extremely aggravated form of that inequality which the President so much deprecates. If I be right in this, how could we make any entirely new improvements by means of tonnage duties? How make a road, canal, or clear a greatly obstructed river? The idea that we could, involves the same absurdity of the Irish bull about the new boots: 'I shall niver git 'em on,' says Patrick, 'till I wear 'em a day or two, and stretch 'em a little.' We shall never make a canal by tonnage duties, until it shall already have been made awhile, so the tonnage can get into it."

WATERWAY USER CHARGE APPROACH OVEREMPHASIZES COMMERCIAL ASPECTS, REJECTS PUBLIC VALUES

The theory of waterway user charges, like other forms of benefit taxations, sees the Government as a commercial vendor and the citizen as a market. The Government supplies desired services at a price. There may, of course, be particular forms of Government activity where such an approach is appropriate. But surely this doctrine cannot be pressed to a "dryly logical extreme." Those Federal programs undertaken for broad purposes of public policy involving national interests can hardly be judged on the narrow standards of vendor and purchaser. The danger from excessive adherence to benefit taxation doctrines is that Federal functions under this shopkeeper preoccupation will tend to be judged on how well they will pay, to the deemphasis of their public policy values. Over ever-broadening areas, the Government would tend to govern less and sell more.

As Professor Taylor[28] puts it:

"A much greater danger in extension of the fee system is in its tendency to justify payments to government in terms of specific benefit to payer. The obverse of this tendency is to justify payments to government only where a specific benefit is conferred. Such emphasis obviously runs counter to the ideal of contribution to government on the basis of ability to pay. And it encourages departure from the concept of government as promoter of the general welfare and movement toward government as a dispenser of benefits to particular individuals and groups at a price."

As applied in the field of waterway improvement, the logical extension of the user charge doctrine would be for the Government to organize project corporations and finance operation and construction through revenue bonds.

The consequence would be that only those projects would be built where payment was assured on a strict commercial evaluation. A change of profit would, of course, be an added incentive and the Government would be in business with a vengeance. Projects would be built in areas where traffic was already highly concentrated along mature waterways. The developmental and other public values of waterway improvement would have no place in such a scheme of things and the utility of waterway improvements as a stimulus to national growth would be cast aside in favor of a restrictive commercial interest.

The function of community and industrial development provided by waterway improvement cannot be fulfilled as a narrowly commercial undertaking. Too much time must elapse between the improvement outlays and the full realization of traffic growth with the associated flowering of industrial activity and community welfare. Regions where growth has long stagnated in spite of rich local resources and manpower promise abundant return of Federal investment in waterway facilities in the form of community growth and a mounting contribution of production and markets to the Nation's economy, but only as a long-term expectation.

In consequence, the full development of such important regional resources as those of the Arkansas Valley would be thwarted by a user charge system. Similarly, presently industrialized regions, whose continued growth is handicapped by lack of adequate water transportation, as is true of steel and other key industries in the Upper Ohio Valley, would be condemned to stagnation and deterioration under a user charge regime. In such instances, there would be a waste, not only of undeveloped natural resources, but of existing capital installations.

Early in our history the technique of exploitation of transportation facilities through private monopoly was attempted. These concerns, however, tended to construct their facilities and conduct their operations only where traffic was assured in sufficient volume for profit. The insistent demands for transportation facilities to stimulate national development were not met and the Congress assumed increasing responsibility for the provision of these improvements.[29] Thus, our past experience counsels against a reversion to a restrictive commercial approach at a time when the need for a dynamic policy for national development is more pressing than ever before.

The user charge is also advanced by its proponents as a device for signaling the abandonment of services which do not cover their costs. Under this philos-

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[28] Taylor, Philip E., "The Economics of Public Finance," the Macmillan Co., New York, 1953, p. 216.

[29] Smith, Howard R., "Economic History of the United States," pp. 103–104, the Ronald Press Co., New York (1955).

ophy, whenever a particular reach of a river, a locking facility, or a tributary failed to yield a user charge revenue sufficient to reimburse the Federal Government for costs incurred, the channel would be closed to traffic. This is a shocking doctrine of public service, contrary to universally established principles, even in the regulation of privately furnished services. Electric and gas utilities, traction companies, railroads, and other regulated monopolies are almost universally required to maintain particular services and segments of their operations in accordance with public need and independently of particularized profitability.

USER CHARGES LEAD TO WASTE OF RESOURCES THROUGH UNDERUTILIZATION OF SITE POTENTIALS

Justification of project proposals under a user charge system would lead to irreparable neglect of vital water resource potentials. A typical project may be conceived under a variety of alternative designs, representing progressive stages toward more complete utilization of the resource potentials of the site. This is particularly true of multiple-purpose projects, combining navigation, flood control, irrigation, soil conservation, and other resource objectives. Under the used charge proposal, there would be a built-in tendency to construct a project only to such a scale and with such features as could be justified by prospective toll revenues. Numerous instances could be cited in which design characteristics would render impossible subsequent expansion or conversion. Preoccupation with commercial exploitation would inevitably neglect public values by preempting sites with projects stunted to commercial scale so that the public value potentials would be forever relinquished. This danger is especially serious in view of the progressive preemption of the limited number of existing sites by community and industrial growth.

As President Teddy Roosevelt stated in his address before the Nation's Governors at the first White House Conference on Conservation on October 4, 1907:

"As a people we have the right and the duty to protect ourselves and our children against the wasteful development of our natural resources, whether that waste is caused by the actual destruction of such resources or by making them impossible of development thereafter."

USER CHARGES WASTE RESOURCES THROUGH UNDERUTILIZATION OF FACILITIES

Not only would site potentialities be wasted, but the physical facilities actually constructed would be underutilized as a result of a user charge system. Such underutilization would constitute a serious waste of the resources of manpower and materials devoted to the construction and operation of the project. User charges would inevitably reduce the volume of traffic utilizing waterway facilities. The loss would be especially great as a consequence of the pervasive practice, noted above, of the railroads to charge below-cost rates in competition with water movement. Thus, the benefits to the economy in the form of transportation service performed will be less under a system of user charges than under the free waterways policy.

The costs, however, will be virtually just as high. Because of the dimensions and physical features of a project site, there is a certain minimum scale to which it must be built and the major features of construction cost are fixed with respect to prospective traffic volume. This establishes the annual capital charges, which are permanently set by the initial construction outlays. The operating and maintenance expense is likewise unresponsive to changes in volume. These fixed costs represent the commitment of scarce social resources, particularly materials and manpower to the project and its operation. Thus, within the minimum scale of construction and operation of the project, the user charge would deprive the public of an important portion of the benefits while saving it virtually nothing of the costs, a serious underutilization of a public service facility.

The foregoing analysis demonstrates, it is submitted, the impropriety of the user charge approach in the field of waterway improvement. For such a system would not only lead to incorrect and wasteful allocation of resources, it would mean that the public would be denied the benefits of the waterway improvements in national development and that funds invested in waterway facilities would be largely wasted through underutilization of sites and of the improvements themselves. The user charge system has no legitimate place in the field of waterways development.

USER CHARGES WOULD RESTRICT CONGRESSIONAL DISCRETION

Viewed in another aspect, the user charge proposal may be regarded as a device to restrict the discretion of Congress in the field of water resource development. Throughout our history, as our previous discussion has shown, Congress has considered waterway improvement in the light of the broadest considerations of national policy and as an instrument in the attainment of important national objectives. The Supreme Court has recognized that such determinations are legislative in character:

"It is for Congress alone to decide whether a particular project, by itself or as a part of a more comprehensive scheme, will have such a beneficial effect on the arteries of interstate commerce as to warrant it. That determination is legislative in character.." [40]

The user charge proposal would make commercial feasibility, defined in terms of adequacy of user charge revenues to cover costs, the sole test. This is essentially an administrative determination capable of execution without regard to the broad range of policy considerations which shape congressional action. Noncommercial policy objectives would be ignored and in this vital field the Government would cease to be a sovereign concerned with the national welfare but would become instead a purveyor of services, administratively determined. We submit that Congress should retain its constitutional functions in providing waterway improvements in the national interest and that it should continue in is own broad discretion to make decisions as to the extent and timing of such improvements so as to avail itself of the opportunities thus afforded to make optimum use of waterways development for the general welfare.

The user charge proposal is a policy of contraction and timidity, attempting to confine the discretion of Congress within the narrow limits of strict commercial considerations. The future challenges us to courageous and imaginative action essential to national growth and strength in the difficult years ahead. We will not find the solutions to such problems in narrow administrative calculations. The answers must be found in breadth of vision and responsiveness to broad national interests. These are responsibilities which under our constitutional system only Congress can discharge.

This conception of congressional responsibility was eloquently expressed and courageously exercised in an earlier day when the challenge of national growth and development was comparable in basic respects to that now confronting the Nation. I refer to the Rivers and Harbors Act of 1882 [41] which contained a specific prohibition against the charging of tolls on any navigation improvement owned by the Federal Government. In recommending passage of the bill, the House Committee on Rivers and Harbors stated: [42]

"The bill deals liberally with all such works as will largely and generally facilitate the commerce of the Nation by opening up the great waterways of the Nation to free navigation. The committee believes that at no time in the history of our Government have the people so unanimously demanded of Congress liberal appropriations for rivers and harbors, that at no time in its history has the U.S. Treasury been in such a condition as to warrant large expenditures in this direction for the public good, and that it is of infinite importance for the protection of the public from the undue exactions of the railroad companies, that the great natural highways of commerce, the rivers of the country, shall be placed in the best position to compete with them. The committee believes that it is the desire of the people, rather than reduce taxes upon the luxuries of life, as has been contemplated by this House, that relief be given to them by larger appropriations for internal improvements, that the surplus revenues should be expended for the benefit of such sections of the country as are most in need of such improvements, so that the long neglected industries and commerce of the South may be properly stimulated, and those of other portions of the United States may have needed relief."

ECONOMIC DISLOCATION

Our previous discussion has indicated the waste of resources inherent in the waterway user charge proposal. But it is probable that the major economic waste would occur from the destruction of established economic and competitive

[40] *Oklahoma* v. *Atkinson*, 313 U.S. 508, 527.
[41] 22 Stat. 191, 209.
[42] Rept. No. 1263, 47th Cong., 1st sess., H.R. 6184.

relationships and from the industrial dislocations necessarily attendant upon repudiation of a policy which for over six generations has so largely shaped our economic environment.

In the absence of a specific proposal as to the magnitude and scope of waterway user charges, it is impossible to assess quantitatively the precise degree of economic dislocation and impairment that would result from such an imposition. Speaking generally, it is evident that the industries established to take advantage of low-cost water transportation and in reliance upon repeated congressional assurances against imposition of tolls or user charges, would suffer severe competitive injury. This consequence follows automatically from the fact that no system of user charges can possibly have a uniform impact in an economy where regional industrial groups compete with each other over enormous areas even though their respective distances from particular markets differ significantly.

The proposal that an initial user charge be imposed at a low level with a schedule of subsequent increases concedes the dislocative and destructive effect of such a charge. The intent of the gradualist approach is to provide water-oriented industries with a scheduled liquidation period so that the destructive impact of a full-scale user charge may be replaced by a systematic dismantling.

It is too obvious for comment that the dislocative effects of a user charge would be aggravated to the point of chaos, if specific charges were established for particular projects or even for small segments of waterways reflecting uniform cost conditions.[43] Some regional groupings and averaging must, as a practical matter, be assumed. On the other hand, there are practical limits upon the extent to which such averaging would be tolerated. It seems highly unlikely, for example, that users of the comparatively low-cost facilities in the Great Lakes would be willing to share these advantages with the users of higher-cost facilities on certain inland waterways or to assist in carrying the burdens of the latter. The proposal for a waterway fuel tax, imposing charges at the same levels indiscriminately on all deep water and shallow draft movement, represents inequitable averaging in its most extreme form. Any differentials in charges which might be made would, of course, contribute to the dislocative impact of the user charges as they applied to competing firms.

Against this background, the economic impact of the user charge proposal must be appraised. The discussion which follows relates principally to the Ohio Valley, but there is no doubt in our opinion that similar disruptions and impairments would result from repudiation of our free waterways policy in any area in which industry has been established in reliance upon low-cost water transportation.

The preliminary estimates of the Corps of Engineers indicated that user charges of the magnitude required to recover all costs of maintenance and operation, as recommended by the Hoover Commission, would amount to about 0.8 of a mill per ton mile on the Ohio River system; 0.59 of a mill per ton mile on the Illinois Waterway; 0.7 of a mill per ton mile on the upper Mississippi from Alton, Ill., to Cairo and 0.37 of a mill per ton mile on the Mississippi from Cairo to Baton Rouge. The Hoover Commission estimated that the cost of maintenance and operation of the navigation works on the intracoastal waterways and the inland rivers is about 0.74 of a mill per ton mile. Such user charges would increase the transportation costs of many shippers by more than 25 percent. And that assumes that the present traffic volume would not be reduced by user charges. The fact is, of course, that user charges, imposed on carriers in competition with the water-based rates of alternative modes, would drive a large part of the traffic from the rivers, increasing the burden on what remained. As water rates increased in response to tolls, a substantial volume of river traffic would become more readily available to capture by competing railroads empowered to charge below-cost rates. This would, of course, add still further to the user charges on remaining volumes of traffic.

In the case of petroleum and petroleum products, which now account for more than one-third of the ton-mileage on the inland waterways, shippers moving these commodities by water in competition with companies relying on pipeline transportation would be forced by user charges, at rising rates, to shift to pipelines or lose the business now dependent on water transport. There appears to be no escape from the conclusion that user charges would operate progressively to destroy the traffic on which they were imposed. Such a result may be appropriate for nuisance and luxury taxes, but it is obviously contrary to sound principle as applied to water commerce.

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[43] See appendix II.

These drastic increases in transportation costs would have most serious dislocating effects on the economy of the entire basin of the Mississippi and its great tributaries. The first casualty would be the modern barge fleet upon which countless shippers, large and small, depend for efficient low-cost transportation. Barge operators faced with such sizable cost increases could not survive the competition of railroads permitted to charge below-cost rates to meet or undercut competition and make up losses on noncompetitive traffic. Thus, a great national asset would be sacrificed—one on which the Nation is dependent for important services in peace and war.

Available facilities of other modes of transportation could not assume the burden of traffic now carried by water without major capital investment. The railway freight car fleet would have to be enormously expanded. At 1957 cost and performance levels for railway freight cars, an investment of about $1.7 billion would have to be made in cars alone to accommodate that portion of river and canal traffic not suitable for pipeline movement. This does not include still additional investment in locomotives, nor in terminal and maintenance facilities. The railroad system, already hard pressed for capital funds, would be totally unable to meet this need.

With regard to pipeline-adapted traffic now moving on the rivers and canals, the investment required under conditions of optimum pipeline utilization would be over three times that of the petroleum barge fleet displaced. Nor is this all. Whereas the barge fleet represents great flexibility as between points of origin and destination, pipelines are immovably fixed. This means that pipelines would have to be built into terminals of intermittent or fluctuating demand with a consequent low utilization of capacity. Thus, optimum conditions would not be realized, and the required investment would be much greater. Progress in the petroleum industry calling for allocation of limited capital funds as between exploration, refinery expansion, and other vital functions would be seriously handicapped.

The massive rate increases resulting from waterway tolls would also exercise a serious adverse influence on industrial plants dependent on low-cost transportation. For the general level of transport costs both on the waterways and by other modes would rise in response to river tolls. Thus, the total increase in the cost burden would far exceed the cost of the tolls, themselves. With the inflationary cost increases thus generated, the competitive range of such plants would be severely contracted. Oil refineries, chemical plants, steel mills, the coal industry, and many others would be similarly affected. These plants are in competition over vast areas with plants located in many different parts of the country. A major increase in water transportation costs would gravely weaken these river valley industries as against suppliers not similarly affected.

Many of these valley industries are actively engaged in competition with foreign suppliers in markets both at home and abroad. The clear consequence of the inflationary cost increases, resulting from waterway tolls, would be a severe injury to a vital segment of American industry in the competitive struggle with foreign suppliers of growing national concern.

In their impact on domestic commerce, waterway tolls are essentially the same in their economic effect as internal tariff barriers which the Constitution forbids. Like tariff barriers, they would tend to shrink the markets available to industry, to defeat the economies of specialization in industry and agriculture and to regionalize trade, dividing the country into restricted economic provinces shut in by toll gates and economic barriers.

The case of the steel industry in the upper Ohio Valley will serve to illustrate this problem. The iron and steel industry of the upper Ohio Valley is a regionally exporting industry. The producing districts of Wheeling, Youngstown, Pittsburgh, and the central Ohio Valley cannot absorb the output of their own steel mills and must compete in the distant national markets with producers less remote from the buyer. The upper Ohio Valley district is universally known as the major steel surplus area in the United States. The health of the industry and the jobs of its workers are directly dependent upon its ability to ship at low cost into distant competitive districts. In a typical recent year, steel plants around Pittsburgh sold about 70 percent of their output to consumers outside the area. A similar observation could be made with respect to the other producing cities in the Ohio Valley.

The special marketing problem of the valley steel industry may be illustrated with respect to important product groups. One of these is oilfield pipe. The

major market for oilfield pipe is the Southwest, and the Ohio Valley industry must reach this distant market in competition with mills closer to the consumer.

River tolls would set up an impediment to this interregional pipe movement, not only by penalizing river transportation, but, in addition, by penalizing it more heavily from the upper Ohio Valley than from producing centers farther west. Wheeling, Pittsburgh, and the rest of the upper Ohio Valley are already under a transportation handicap in the southwestern markets. On the basis of the Army Engineers estimates, the proposed tolls would increase the cost per net ton of barge movement by $0.99 from Wheeling and by $1.06 from Pittsburgh, while raising that from Chicago by only $0.62. Thus, the toll proposal would, on the one hand, penalize the interdistrict movement of pipe, both from Chicago and from the Ohio Valley, and, on the other, discriminate more severely against the more distant movement, especially with the higher charges applicable to Ohio River traffic.

The case of the coal industry, so vital to the economy of the Ohio Valley, presents another striking illustration of the constrictive effect of waterway user charges upon the economy of this area. Every State in the Ohio Valley is a major producer of bituminous coal. In 1958, the Ohio Valley States produced over 80 percent of all the coal mined in the United States. In the face of extreme difficulties confronting the coal industry, the Ohio River has provided low-cost access to major markets and thereby has proven an immense sustaining force. From 1945 to 1958, while the Nation's production of bituminous coal declined to only 69 percent of its former level, coal movement on the Ohio River rose to 206 percent, and in 1958 amounted to over half of total tonnage of all commodities shipped on the river, specifically, 51.7 percent.

Thus, the user charge would be a uniquely severe blow to the central coal-producing region of the Nation. According to Dr. Thomas C. Campbell of West Virginia University,[44] the price of coal in major markets is more than double the price at the mine with most of the increase in cost being attributed to transportation. As a result, the industry is very sensitive to transporation cost changes. The imposition of a user charge would thus be highly damaging to the coal industry. Extensive communities making their living on coal production throughout the length and breadth of the Ohio Valley would suffer a crippling blow to their basic economy.

The impact of this blow would be even more far reaching. Major industrial growth throughout the valley has taken place in dependence on the availability of coal by water. The iron and steel industry of the Pittsburgh district derives the great bulk of its coking coal via the Monongahela River. A similar observation applies to Wheeling and other iron and steel centers dependent on the Ohio River.

Since the beginning of World War II a great electric power system, producing low-cost energy for the entire industrial complex of the valley, has been built upon the availability of coal by water. From 1941 to 1958, the capacity of generating plants on the banks of the Ohio increased by 716 percent, while that for the Nation as a whole went up only 231 percent. The reason for this greater growth along the Ohio River is found in the low cost of coal delivered by water. The cost of coal at the powerplants on the Ohio averaged only $4.57 per ton in 1958, in contrast to an average of $6.58 per ton for the power industry of the Nation as a whole. Every coal-producing State on the Ohio River has shared in supplying coal by river barge to this burgeoning industry with massive movements both upstream and downstream to accommodate the specialized needs of respective plants.

The chain of interdependence extends even further. Low-cost electric power derived from waterborne coal has, in turn, stimulated growth of major energy-consuming industries, notably aluminum reduction and chemicals. Close to 60 percent of all the new aluminum capacity constructed throughout the Nation since 1956 has been built on the banks of the Ohio. The growth of the chemicals industry is reflected in the movement of chemicals on the river. While the production of chemicals throughout the United States went up by 82 percent from 1949 to 1958, the movement of chemicals on the Ohio River increased by 174 percent. Other industries could be cited, as well, for their dependence on low-cost electric energy derived from waterborne coal. These will suffice, however, to indicate the immense complex of growth which has emerged from this traffic, tying the economy of the valley into a single interdependent unit.

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[44] Address before Ohio Valley Improvement Association Annual Meeting, Nov. 10, 1959, "The Importance of the Ohio River to Coal."

In its damaging impact on the coal traffic, a user charge would sever the interstate and interregional relationships within the Ohio Valley, fragmenting the regional economy into smaller units of stunted development. Higher costs of coal delivered at electric powerplants would be immediately reflected in higher electric energy rates. Throughout the valley, utility contracts contain a fuel adjustment clause, providing for automatic adjustment of industrial rates in response to changes in cost of coal at the powerplant. The consequences in industrial dislocation would be most serious. Industrial establishments representing large investment are constructed upon assumptions as to availability of fuels and materials under predictable cost conditions. To inflate a cost so basic to the valley economy as that of bituminous coal would increase costs to a major degree in unpredictable directions throughout the complex industrial structure of the valley and would gravely discourage further growth throughout this great region.

Such an impairment of growth potential represents a net loss to the Nation as a whole. Industrial growth at the point of lowest cost for waterway-adapted industries constitutes an increment to the Nation's industrial establishment which could not occur on a comparable scale elsewhere and which diffuses its benefits throughout the country in low-cost materials and enlarged markets for other industries.

USER CHARGES WOULD DISCRIMINATE AGAINST THE SOUTH

In considering the dislocative effects of user charges, the case of the South as a geographical area deserves attention.

To a remarkable degree, the American inland waterway system is a southern system. Industries in the Southern States have long been handicapped by higher rail freight rates than those their competitors in the North have had to pay. This has been one of the factors contributing to retarded economic growth and lower income levels in some of these States. Partially offsetting this, water transportation has been the foundation of much of the industrial growth in the South since the end of World War II.

In 1957, 72.1 percent of all the freight hauled on the American inland waterway system moved on southern waters. The following table, compiled from reports of the U.S. Corps of Engineers, details this fact.

Net tons carried on the inland waterways[1] *(domestic, inland, excluding Great Lakes), 1957*

	Millions of net tons	Percent
Southern Mississippi and tributaries (St. Louis south, including Ohio River, but excluding Allegheny and Monongahela)	136.0	
Gulf Intracoastal Waterway	48.1	
Black Warrior-Tombigbee system	4.9	
Total southern	189.0	72.1
U.S. total	262.3	100.0

[1] Ohio River traffic is included as "southern" because, except for a short upstream reach within the State of Pennsylvania, the river falls entirely within the States of Kentucky and West Virginia, whose boundaries extend to the north bank of the river. Furthermore, most of the traffic on the Ohio River originates or terminates in Southern States.

By contrast, total tons of freight moved by rail in the southern district (east of the Mississippi and south of the Ohio Rivers) in 1957 amounted to only 26.6 percent of the national total. The differential impact of tolls on the southern economy would compound its historic disadvantage with respect to rail freight rates.

The destructive impact may be better appreciated by considering specific southern localities. Industrial growth of recent years has concentrated around such waterway cities as New Orleans, Baton Rouge, and the gulf coast region of Texas, moving chemicals and petroleum products on the Mississippi and over the Gulf Intracoastal Waterway. The iron and steel industry of the Birmingham region has become progressively more dependent on low phosphorous iron ore of high ferrous content from Venezuela, brought up the Black Warrior River. The new chemical and aluminum industries of West Virginia have taken root

on the Kanawha and Ohio Rivers for access to waterborne materials and low-cost electric power derived from barge deliveries of coal. Waterway navigation is a vital feature of the development of the Tennessee Valley and the neighboring Cumberland Valley, both tributaries of the Ohio. The southern Appalachian coalfields of eastern Kentucky, southern West Virginia, and Virginia, long subject to underdevelopment and low income standards, have derived tremendous benefit from the shipment of bituminous coal on the Ohio River to newly established and growing industries, both upstream and downstream. Since 1950, the counties bordering the Ohio River and its navigable tributaries have been the seat of a phenomenal industrial expansion, representing an investment, made or announced, of some $15 billion. The waterways have been the salvation of the South, and user charges would depress the regional outlook for improving income standards to levels consistent with the Nation as a whole.

Through industrial development, the South has reached the threshold of full participation in the American standard of living. While per capita income increased throughout the United States from 1950 to 1957 by 35.9 percent, in the East South Central States it increased by 42.7 percent. Along the waterways, income levels have been especially improved. The impact of industrial growth on income levels is not immediate. It requires time. After the establishment of basic industries such as steel, chemicals, and aluminum, the development of satellite industries and service and commercial facilities must take place for the full realization of economic potentials. The imposition of user charges on southern waterways would obstruct the climb to higher income standards in the very process of realization.

DISLOCATIVE EFFECTS OF USER CHARGES ON OCEAN PORTS

Still another significant case of the dislocative effects of user charges is presented by the position of our ocean harbors under such a regime. Available information indicates a wide variation between individual harbors insofar as tolls required to recoup present costs are concerned. A recent study by the Corps of Engineers [45] shows that to recover operation and maintenance only, would require tolls ranging from 0.5 cent per ton for Seattle to 3.7 cents per ton for the Delaware River deep-draft facilities. On the Great Lakes tolls similarly calculated would vary from about 0.2 cents per ton for Duluth-Superior to 2.7 cents per ton for Cleveland. Tolls to recover capital costs of authorized improvements would add substantially not only to the amount of the charge but to the degree of variation.

Analysis indicates that there would often be wide variation between nearby ports in the charges required to recover costs. The variations thus calculated reflect existing traffic volumes. As port usage changed in relation to initial tolls impositions, still larger differentials in charges to recover costs might well eventuate.

Obviously decisions to utilize particular ports will be influenced by relatively small differences in costs since many ports serve substantially the same hinterlands. It is to be expected, therefore, that a system of differential tolls reflecting cost variations at individual ports would cause drastic shifts in usage and grave impairment in the value of port facilities—terminals, warehouses, rail and highway connections, cargo handling equipment and utilities which have been provided at State, municipal and private cost.

Some regional grouping might, of course, be attempted to mitigate inequity and waste but apart from the fact that such grouping would destroy the yardstick value of the tolls system, the practical political obstacles would seem insuperable. Moreover, even fairly broad regional groupings, such as that suggested as a possibility by the Army Engineers in the study referred to above, would leave large differentials among the port regions. Thus, it was calculated that tolls to recover operation and maintenance only on the basis of six port regions would reflect a variation of 500 percent in the charges for South Atlantic ports over the charges for North Atlantic ports.

The irony is that from the standpoint of equity and expediency there are sounder reasons for imposing tolls on the harbors than on the inland waterways. As the Corps of Engineers study points out: "The latter are used almost exclusively by American commerce and industry which pay taxes and return benefits to the general economy of the country. Harbors, on the other hand,

[45] Staff study (unpublished) on the impact of tolls or user charges on the Federal navigation program (1958); Civil Works Division, Corps of Engineers, U.S. Army (p. 16).

are used to a large extent by foreign shipping, which aside from nominal port charges, pays no tax to the United States.[46]

In addition to the problems of inequity and dislocation discussed above, imposition of harbor tolls could be expected to have a substantial adverse effect on our foreign trade and maritime commerce. In the years ahead, it is evident that we shall become increasingly dependent on our foreign trade and that we cannot afford measures which will impair our trading position in competition with the Communist world. Conversely, exemptions provided to mitigate adverse effects on foreign trade, would constitute direct discrimination against domestic commerce and industry.

In a complex port system, such as Houston, Tex., such a discrimination would have the absurd consequence of imposing tolls on domestic shipping plying the same channels as exempt foreign commerce. Such discriminations would, we think, raise most serious constitutional questions under the ports preference, due process and tax uniformity clauses of the Constitution.

Under any conceivable system of tolls or user charges, imports would be favored relatively to goods of domestic origin. The petroleum industry affords a graphic example of such a situation. Tremendous volumes of crude oil and refined products move by tanker from gulf coast ports to the eastern seaboard. At the same time, large volumes of petroleum and petroleum products are imported from foreign sources. Coastwise shipments would have to pay tolls at both port of origin and port of destination. Even if tolls are imposed on imported oil, they would apply only at the receiving port. The domestic movement would be taxed twice; the foreign movement only once.

If, as might well be the case, the toll at the domestic port of origin were higher than the toll at the port of destination, the total charge against the domestic oil would be more than double that on the foreign material.

The discrimination would be even more severe against domestic crude ore products moving by inland waterway to interior markets in competition with products refined from foreign crude.

Similarly, movements of domestic iron ore via the Great Lakes to steel mills in the Chicago or Pittsburgh districts would be penalized in relation to foreign ores moving to competitive east coast mills. Coastwise movements of lumber in domestic commerce would suffer a handicap in competition with lumber from abroad.

Instances of dislocative and discriminatory consequences of waterway user charges could, of course, be multiplied. The volume of grain movements on the inland waterways, for example, has increased about 300 percent since 1947. Benefits are shared by both shipper and receiver. A toll charge would be a burden on farm welfare and on the price of basic foods. In a thousand other sectors of our economy, waterway tolls would handicap and distort essential commerce. It is not surprising, therefore, that the Corps of Engineers concluded its recent study of the user charge question by saying: "If the Nation should impose user charges, it would lose more in benefits than it would gain in revenues." [47]

DIFFICULTIES OF EQUITABLE ASSESSMENT

In the absence of a specific user charge proposal, the difficulties of equitable assessment of such charges cannot be adequately explored. It may be noted, however, that such difficulties arise principally from the uneven competitive impact which such charges would inevitably have. These were discussed by Maj. Gen. B. L. Robinson, then Deputy Chief of Engineers for Construction, in 1954. General Robinson's remarks are attached as appendix II. General Robinson's analysis dramatically highlights the extreme competitive dislocations between ports and trade regions implicit in the user charge proposal.

Other difficulties arise from the variety of cost and traffic conditions on the various harbors and waterways and the practical impossibility of fair allocation of the costs of multipurpose projects. In this connection the recent Harvard study entitled "Competition in the Transportation Industry" [48] contains the following comment:

"* * * A user cost taxation scheme requires that the cost attributable to water carrier development be determinable. Unfortunately, many navigational developments are part of much larger objectives intended for other purposes, such as

[46] Op. cit., n. 46, at p. 18.
[47] Op. cit., n. 46, at p. 18.
[48] Meyer, Peck, Stenason & Zwick, "Competition in the Transportation Industry," Harvard economic series, Harvard University Press, 1959.

reclamation and the generation of hydroelectric power. Consequently, the common or joint cost problem is extremely acute in water transportation—being, if anything, even more difficult than it is in the other forms of transportation, including railroading. Accurate cost allocation is therefore often difficult if not impossible" (p. 122).

As discussed above, additional problems of even greater difficulty arise when the question of user charge imposition on the Great Lakes and ocean harbors is considered. Their inclusion within the user charge system would be injurious to the railroads, would adversely affect our foreign trade and give rise to grave dangers of retaliatory action against our shipping in foreign ports. Gross inequities would occur under such a system.

On the other hand, these ports cannot be exempted, if user charges are imposed on the inland streams and canals, without producing inequities as great if not greater. The deepwater harbors and channels represent about half the total cost of waterways improvement and promise in the future to require an even larger share. Their exemption would thus be a monstrous inequity gravely impairing domestic commerce and industry.

These are in broadest outline some of the complex problems of user charge determination. Difficulties are, of course, not a valid reason for rejecting correct policies. But these dilemmas are inherent in the underlying fallacies of the proposal. They betray inner self-contradictions and the basic unsoundness of such a scheme. They compel the rejection of any repudiation of our historic free waterways policy.

CONCLUSION

Our free waterways policy has played a vital part in our national development, and the challenge of the future now lying before us demands a rededication to this policy. The vigorous development of our water courses has been in the past one of the principal means for creating economic opportunity and for the building of national wealth by the private enterprise of individual citizens. In the middle of the 20th century, facing as we do an explosive increase in our consuming population and in our labor force, confronted with the potentials of technologies heretofore unimagined, and challenged by the rivalry of foreign ideologies, the Nation demands a level of vision and courage in the sound development of our water resources unprecedented in our history. The magnificent achievement of past foresight and initiative in this area is the ideal model for our future policy.

In the context of the vast economic growth lying ahead, a policy of user charges repudiating pledges and principles older than the Republic on the basis of which major economic and community relationships have been established is totally inappropriate. Such a policy would fail to provide a sound measure of resource allocation in the field of waterways improvement. Its imposition would involve wasteful employment of resources and enormous sacrifices of public values, as well as impairment of basic economic relationships and far-reaching industrial dislocation. To deal adequately with the Nation's future needs, it is imperative that Congress continue its active control over the alocation of resources for waterway improvements in the light of pressing considerations of national policy. Only the Congress can bring to bear the perspective and collective wisdom essential to fruitful decisions in this area, touching vital national interests. The Nation cannot afford to retreat into a restrictive policy, bureaucratically administered on the basis of narrow commercial principles. We cannot afford to reverse a brilliantly successful historic policy at the very moment when its continued application is most urgently required for the future welfare of the Nation.

SUMMARY AND CONCLUSIONS

I. Statement and history of established free waterways policy

(*a*) It is the established policy of the United States that—

(1) The waterways of the Nation are and shall remain free common highways accessible to all without toll or tax, and

(2) The National Government has authority and responsibility—acting as a sovereign and not as a proprietor—for the maintenance and improvement of the waterways of the Nation.

(*b*) The status of the waterways as free common highways without toll or tax antedating the founding of the Republic is established by the Northwest Ordinance of 1787, the organic acts of various States, international treaties, and repeated acts of Congress. The authority and responsibility of the Na-

tional Government for waterways maintenance and improvement foreshadowed in an act of the first Congress under the Constitution in 1789 has been repeatedly affirmed by Congress and by numerous Presidential messages.

II. Free waterways policy has been brilliantly successful as an instrument of national welfare

This policy initially designed to foster trade and commerce in the interest of national expansion and development has been immensely successful. It has exerted major influence on the form of our economy and the pattern of community and population growth. It has served as an effective instrument for national defense, stimulation of industry and trade, economic stabilization, agricultural assistance, regional rehabilitation, resource development, and other broad national welfare objectives. Its results are evidenced by population distribution, industrial growth along navigable waters, increased use of the waterways for movement of grain and other commodities important to farm welfare, and especially in the form of dispersion of strategic industry throughout the relatively protected interior of the country along the waterways. Recent studies demonstrate the wide range, magnitude and diffusion of benefits from Federally provided waterway improvements. See especially "Economic Effects of Ohio River Navigation" by Joseph R. Hartley of Indiana University.

III. Rededication to free waterways policy is urgently needed for meeting challenge of the future

(*a*) The demonstrated success of our free waterways policy as a stimulus to industrial growth and creation of employment opportunities argues strongly for continuance in the future. Tremendous population growth and rapid additions to the labor force, expected to reach nearly 95 million by 1975, an increase of more than 20 million over 1960, and consequent need for vast private capital investment to support such employment levels urgently demand application of policies of proven soundness to encourage private investment.

(*b*) Counter-inflationary character of waterways improvements reducing delivered costs of basic commodities points up importance of its continuance in a period characterized by inflationary pressures.

(*c*) Reduction of costs to strengthen domestic industry will be of utmost importance in meeting the mounting challenge of foreign competition from the Soviet Union and the free world. Water resource development for navigation, flood control and water supply contributes immeasurably to efficiency of American industry in this competitive struggle.

(*d*) Increased rapidity of technological change in the years ahead will aggravate the depressed-area problem. Free waterways policy is of proven effectiveness in providing expanded employment opportunities for workers made idle by technological factors.

(*e*) An accelerated waterways improvement program is urgently required for huge increases in waterway traffic now in prospect for the years ahead. Based upon growth trends of the past 10 years, about 300 billion ton-miles annually--300 percent over 1957 levels will be moving by water by 1980. Existing policy facilitates needed acceleration in improvement program. Such improvement is not injurious but helpful to the Nation's railroads as evidenced by relatively superior position of major river valley railroads as compared with national average.

(*f*) Full utilization of our national resources is imperative for the well-being of our people and for meeting the growing challenge of the Communist world. Free waterways policy provides an effective instrument for making important regional resources available to the national economy.

IV. Proposals for imposition of waterway tolls or user charges repudiate established free waterways policy and should be rejected as grossly inadequate to needs of a dynamic and growing economy, destructive of basic economic values and injurious to economic and defense potential in meeting the challenge of the future

(*a*) Policy of waterway improvement justification on basis of predicted tolls revenues provides a false standard for resource allocation, involving comparison of total costs of waterway improvement and related water carriage with partial costs of competitive rail service. Realistic estimates of toll revenues must recognize pervasive railroad practice of charging below-cost rates in competition with water movements. Under free waterways policy, total costs

of improvement and related service are compared with total costs of cheapest alternative mode. User charge policy approach would necessarily result in waste of resources. Many sound projects would not be built, many sound existing projects would be abandoned, and funds channeled into less desirable alternatives, to the long-range injury of the national economy.

(*b*) As a yardstick device, the tolls proposal has value only on individual project basis; the resulting system of differential rates would create commercial chaos.

(*c*) Under the tolls proposal, purely commercial aspects—Government as vendor, citizen as market—are emphasized to the sacrifice of public policy values, thus rejecting opportunities for important regional development through waterway improvement. Similarly, exclusive commercial preoccupation will result in termination of essential transport services which even private utilities would be required to maintain in the public interest.

(*d*) Commercial emphasis of user charge approach would result in underutilization of site potentials, already scarce, by stunting projects to shortsighted commercial scale—thus wasting essential resources.

(*e*) User charges necessarily result in lessened use of waterway improvements, but since project costs are almost entirely fixed, public expenditures cannot be reduced in relation to diminished use. Public is thus deprived of values of water transport service performed without compensating cost reductions. This waste of important public assets would be compounded by further reductions in use resulting from railroad practice to setting below-cost rates in competition with water carriage.

(*f*) By establishing narrow bureaucratic standards governing waterway maintenance and improvement, congressional discretion to employment waterway development in the attainment of important policy objectives would be sharply contracted.

(*g*) Most serious economic waste and injury would result from major dislocation of industrial installations and trade relationships established in reliance upon repeated governmental assurances of toll-free waterways. Waterway transport cost increases would be of major magnitude and uneven incidence. Delicately balanced competitive relationships would be disrupted and interregional competition severely curtailed. Waterway tolls are the same in effect as internal tariff barriers, limiting competition and discouraging efficiency and specialization in industry and agriculture. Important interregional movements of grain and other commodities essential to farm welfare would be severely burdened. An extreme burden would be placed upon capital funds to provide transport service by alternative modes required to handle displaced volumes of traffic. Waterway tolls are peculiarly and dangerously inflationary. They would affect basic commodities whose costs enter into a vast range of finished products. Further, resulting cost increases would far exceed the amount of the user charge itself since competitive transport rates would inevitably rise in response to tolls.

(*h*) In view of predominantly southern orientations of waterways system, penalties of tolls system would fall most heavily on southern communities now on the threshold of full participation in national income levels.

(*i*) Imposition of waterway user charges on Great Lakes and ocean ports would result in grave economic dislocation and in impairment of foreign commerce. Exemption of such ports would be grossly inequitable, especially in view of Federal expenditures substantially equal to those on inland waterways, and would discriminate sharply against domestic commerce and industry. Any tolls system inherently involves discrimination against domestic industry.

(*j*) Extreme difficulties of equitable assessment of waterway user charges arise from necessarily uneven competitive impact, establishment of major industrial installations and trade relations in reliance on free waterways policy, variety of cost conditions on different rivers and harbors, and difficulties of allocation of costs of multipurpose projects. These dilemmas show internal contradictions and basic unsoundness of tolls scheme.

V. Conclusion

In view of emerging problems of future growth and development, intense international rivalry and requirements of retaliatory potential in nuclear missile age, established policy of proven effectiveness in dealing with such problems must be preserved and the contradictory policy of waterway user charges rejected as restrictive, wasteful and totally inadequate for meeting the challenge of the future.

TABLE I

Population and labor force projections, Bureau of the Census

[Thousands]

	Total population over 13 years of age	Labor force, 14 years and over
1955	118,846	68,899
1960	126,528	73,550
1965	138,127	79,872
1970	150,691	87,092
1975	163,704	94,775

Net changes in labor force, 14 years and over

1955–65	+10,973,000
1965–75	+14,903,000

Average net value of plant, property, and equipment per production worker in metalworking and metals industries [1]

1947–49 average	$2,114
1957	5,945

[1] Source: Iron Age, July 17, 1958, p. 4.

At an investment of $6,000 per worker the labor force growth from 1965 to 1975 will require an annual investment of $9 billion (1.5 million workers yearly increment at $6,000 each).

TABLE II

National Industrial Conference Board projections [1]

[Billions of dollars of 1954 purchasing power]

	Gross national product	Gross private domestic investment	Personal consumption expenditures	Government purchase of goods and services
1954	363.1	48.9	238.0	76.6
1958	391.4	48.4	268.0	75.0
1960	412.8	61.5	274.9	75.5
1965	477.8	71.2	318.2	87.4
1970	553.1	82.4	368.4	101.2
1975	640.2	95.4	426.4	117.2
1980	741.0	110.4	493.5	135.6
2000	1,330.0	198.2	885.8	243.4

[1] Source: Business Record, vol. 16, No. 1, January 1959, p. 9.

APPENDIX I

CERTAIN CONCLUSIONS FROM PROF. JOSEPH R. HARTLEY'S STUDY ENTITLED "THE ECONOMIC EFFECTS OF OHIO RIVER NAVIGATION"

After decades of oblivion, rivers across the Nation and especially in the Ohio Valley have been characterized by a tremendous rebirth of traffic. Domestic waterway traffic excluding the Great Lakes has burgeoned from 20-billion ton-miles in 1939 to 120-billion ton-miles in 1957. (P. I.)

* * * * * * *

The demise of Ohio River traffic followed by its spectacular new growth appears to be a paradox that has caused many economists to doubt it is based on sound economic characteristics. The massive change in technology of river transportation equipment has afforded a major advance in efficiency and productivity. * * * Modern river equipment and operating technique make barge movement the cheapest means of moving dry cargo freight in domestic commerce with the exception of the large boats on the Great Lakes. (P. I.)

* * * * * * *

The other reason for rebirth of commerce on the Ohio River is the improvement of the river itself. * * * It is difficult to say whether canalization or the improved technology of equipment is the more important reason for the growth of Ohio River traffic. Both are necessary for modern river transportation service to shippers just as good highways and efficient trucks are both essential for motor transport service. (Pp. I–II.)

The transportation savings attributable to freight movement on the Ohio River and its tributaries are clearly passed on to shippers by barge operators. The 935 individual barge companies operating on the Mississippi River system and the Gulf Intracoastal Waterway insures that competition among them is intense and that rates cannot be held above a reasonable profit level. (P. II.)

* * * * * * *

Coal is king on the Ohio River just as it is for the railroads serving the Ohio Valley because of the almost ubiquitous coal reserves there. * * * The general effect of the river has been to provide America's prime industrial fuel cheaper than would otherwise be possible. (P. III.)

* * * * * * *

The availability of cheap barged coal and abundant water supplies has caused a burgeoning of the electric power generating industry on the banks of the Ohio River and its tributaries. Plants located on the River system are now producing approximately 12 percent of the Nation's power compared to 6 percent in 1939. Generating stations on the river have production costs about one-third less than the national average. Development of long-distance transmission lines enables these stations to provide power to cities as much as 100 to 150 miles away from the river's banks. Savings from the barged coal for power generation are spread evenly throughout that area because the generating companies charge fairly uniform system rates. Regulation of power rates by the Federal Power Commission and State utility commissions assures that savings from river transportation of fuel are reflected in rates to electricity consumers. (P. III.)

* * * * * * *

The total of the river's impact has been to spark a major industrial boom in the Ohio Valley. Approximately $13 billion has been invested in industrial facilities since 1950 in counties along the river and its tributaries. The increase of per capita incomes and retail sales and urban expansion has been higher than the national average in the decade from 1947 to 1957. The Ohio Valley as a whole is still relatively less prosperous than the Nation, however. Declining employment in the coal industry and the technological obsolescence of the small hilly farms has caused a severe and protracted recession in parts of the valley, such as eastern Kentucky, West Virginia, eastern Ohio, southern Indiana, and Pennsylvania. The surplus labor of the area has been an important factor in attraction of new industry. Some hold the view that Federal improvement of the Ohio River system has been an unwarranted subsidy since barge operators do not pay direct chargse for use of the waterways. However, the public investment has made the Ohio River a valuable national asset that has attracted a large volume of private capital to make use of the underemployed labor and natural resources of the region. Improvement of the river has helped provide an economic base for healthy, sustained, and rational econmoic growth. The resultant economic boom may well have provided railroads paralleling the Ohio River and serving river industrial sites with more freight traffic and revenue than would have occurred if the economy of the Ohio Valley had continued its decline of the 1930's and 1940's. The aspect of the river's impact on other transportation carriers merits considerable additional research. (P. IV.)

* * * * * * *

One can safely conclude that the benefits of river transportation are spread regionally and in some cases nationally to ultimate consumers and taxpayers. Pervasive competition among barge companies and most of the industries using the river assures that the economies will be passed on from raw material producers through the various layers of fabricators to individual consumers of products and services. The pricing policy of major industries has been an important factor in distributing the benefits widely. For instance, the electric power industry, the aluminum industry, and the appliance industry average their transportation costs among all customers so that a transportation savings at any one point affects the average charge for customers through their market territory. (P. V.)

* * * * * * *

The previous measure used to examine river navigation benefits was the effect of the river's economic assets on the cost of goods for the consumer. The increases in standard of living afforded by the Ohio River are felt much more on a regional and a national basis than on a strictly local one. Another aspect of the benefit question is that the Ohio River obviously has been helping to create employment at rapid rate in the Ohio Valley since 1945. The creation of new jobs in the Ohio Valley may well be one of the most important national contributions of the river. It has already been indicated that much of the Ohio Valley, especially south of the river, has been a chronically depressed area for decades. Pure economic theory would assume that the reduction of jobs in the Ohio Valley area can be solved instantaneously by immediate movement of unemployed families to industrial centers outside the valley where jobs are being created at a rapid rate. However, as a matter of practical national economics, it is axiomatic that labor is still relatively immobile. The surplus of agriculture products could be easily solved if a few million farm families left their marginal farms and took up other jobs but sustained low incomes have not been sufficient to move enough of these families off their farms. The same applies to the regional unemployment in the coal mining industry.

Labor is the most precious economic asset that a Nation has. Unlimited raw material supplies are meaningless until human effort is applied to transform them into usable goods. Most of the Ohio Valley has been characterized by a large supply of unemployed or only partially employed labor. The laborers have migrated steadily to other regions, but the migration has not been fast enough to keep up with the decline of the original basic industries in the valley. As long as those people are not producing goods for the Nation the value of their potential output is a real economic loss. The total loss of gross national product must be in the billions of dollars.

The problem of regionally depressed areas has been recognized for years in the United States. Numerous bills have been submitted in Congress to provide direct economic assistance to these areas. It may well be that Federal improvement of the Ohio River has been one of the cheapest forms of regional assistance that could be devised. Rather than pay the marginal farmer or coal worker a dole or create make-work types of jobs simply to keep him active, waterway improvement has materially enhanced the economic base of the Ohio Valley. This has attracted large volumes of private capital to the area and has helped provide a springboard for new, solidly based economic growth. A relatively small public investment over the past 40 years to improve the Ohio River has helped transform a large national area from one of idle, wasted resources to a booming, productive area.

The river clearly has an emphatic two-pronged effect. On the one hand, it is providing more and cheaper goods and services for American consumers throughout most of the Nation. On the other hand, it has helped make a substantial block of our labor force productive once more. It is difficult to decide which is more important from the public point of view. Both benefits have certainly made substantial contributions to the national welfare. (PP. 97–98.)

APPENDIX II

Certain Excerpts From Remarks of Maj. Gen. B. L. Robinson, Deputy Chief of Engineers for Construction, Before the Intracoastal Canal Association of Louisiana and Texas, New Orleans, La., October 11, 1954

It is a responsibility of the Corps of Engineers, as the Federal agency entrusted with the Nation's navigable waterway construction program, to be able to answer questions concerning the possible effect of tolls or user charges upon navigation facilities. We could not uphold our own policy on tolls without having current facts and studies to back it up. So I am in a position to tell you that our opposition to tolls is not based on mere preference, or a stubborn insistence on blind tradition, but upon a detailed and up-to-date analysis of some of the staggering problems that would be involved in any attempt to impose such charges.

The economic factors involved are complex. There are places where the investment cost of a waterway is so low and traffic so heavy that it would only require an insignificant charge indeed to replay the Government's expenditure. In the same general vicinity there may be other communities whose waterway facilities cost more, and whose traffic is not as heavy, and whose businessmen, shippers, and carriers consequently would have to pay perhaps many times as

great a charge. This would make a mockery of free competition between adjacent ports with high differential charges.

The corps has recently completed a study showing the wide variations in the cost-versus-tonnage ratios in adjacent ports and waterways.

If, to offset this difficulty, we group ports by regions, and inland waterways by systems, for chargemaking purposes, we encounter the problem of interregional competition, and the subsidization of less efficient facilities at the expense of those which are more desirable by nature or enterprise. In short, there is no ready answer even to the fundamental question of whether user charges would be feasible, or whether they would have the result of wiping out important segments of our flourishing water-transportation industry.

But the effect of such charges upon waterway traffic, and problems of competition between port and port, trade area and trade area, and system and system, constitute only the first ring of complexities that the imposition of user charges would involve. Beyond these we must consider the balance of the national transportation system as a whole. If we grouped all the ports of a given region for ratemaking purposes—say, the gulf ports as one region, and the South Atlantic ports as another—though these regions themselves serve largely overlapping hinterland areas—and if we classified our waterways into categories, such as deep-draft harbors, inland waterways, shallow-draft harbors, and so forth—and if we were to establish schedules of charges based on the characteristics of each category of shipping and upon the commodities it carried—after doing all this, we would face the monumental task of adjusting those rates and schedules to the already established and immensely involved rate structures of the rail and motor carriers, with all their complexities of geographical division, points of service, commodity classes, long-and-short-haul stipulations, fourth-section adjustments, and whatnot. Yet some such adjustments would have to be made; for if it weren't, the competitive situation between carriers would become a shambles, and the waterways transportation industry would undergo a complete upheaval.

In addition to all these problems, we must consider the effect of user charges upon our foreign trade, the possibility of retaliatory charges against American vessels and cargoes in foreign ports, and related problems. We must consider the vast problem of administering a program of user charges—of measuring the cargoes and collecting the fees upon all of our 28,000 miles of waterway and at all of our 500 locks and 300 harbors. We must consider which costs should be recovered, and which not—for it would be manifestly unjust as well as immensely difficult to go over a system which has grown up gradually over a period of 130 years on the assumption that use would be free, and forming the basis of vast private and other investments made on the same assumption and try to make our user-charge policy retroactively recover costs which were never meant to be repaid. And finally, we must consider the implications to national defense; for if the imposition of user charges would have the effect of eliminating any of our waterways, whether already existing or potentially feasible, it would constitute a strategic weakening of our country's capacity for defense and military effectiveness—a matter which alone might outweigh many other arguments.

Mr. HULL. My prepared statement, 55 pages in length exclusive of summary, footnotes and appendixes, is an attempt to provide a reasonably adequate treatment of a complex and many-faceted subject from the perspective of the select committee's interest in water-resources development. Certain phases of the problem primarily related to transportation policy have not been discussed; nor could we do more than indicate the types of complexities and difficulties of equitable assessment which would be encountered should our established free waterways policy be rejected in favor of a tolls or user charges system.

Consideration of these and other aspects of the problem would require most exhaustive study and analysis, if and when a specific legislative proposal for imposition of waterway user charges is presented to the Congress.

Our statement filed today is intended to present:

(1) an appreciation of the historic background and the public values of our established free waterways policy and its effective-

ness as an instrument of the Congress in dealing with important national problems and in the attainment of major national objectives;

(2) an indication of the nature and scope of emerging challenges of national concern which we seem destined to confront over the next 20 years and an appraisal of the relevance and value of our free waterways policy, based upon its past achievements in analogous areas, as a means for assisting the Nation in meeting the demands of the future; and

(3) an analysis of the contradictory policy of waterway tolls or user charges pointing especially to its restrictive wasteful and destructive tendencies in an era when all our efforts must be concentrated on growth and development and the building of our national strength.

The free waterways policy of the United States has consisted of two basic and closely integrated elements:

First, that the waterways of the Nation are and shall remain free common highways accessible to all without toll or tax, and

Second, that the National Government has authority and responsibility—acting as a sovereign and not as a proprietor—for the maintenance and improvement of the waterways of the Nation.

The toll-free status of our waterways stems, as you know, from the Northwest Ordinance of 1787. It has been woven into the fabric of our economic life by repeated reaffirmation in congressional expressions of law and policy. Similarly, the companion principle of internal improvement through waterways development derives from basic decisions of the Congress in our formative years as a Nation.

The sponsorship and vigorous prosecution of these integrated principles by the Congress and all our great Presidents as a unified free waterways policy reflect the recognition by the National Government of its responsibilities for the unification and expansion of the Nation, for encouragement of industry and commerce, for the building of the national estate, the development of our natural resources, diffusion of economic opportunity and the strengthening of the Nation in peace and war.

In more recent times, our National Government has successfully applied our established free waterways policy for attainment of additional public policy objectives, such as assistance to agriculture, depressed area rehabilitation and economic stabilization.

In pursuing this dynamic policy, the American people have profited by the lessons of history. For the great civilizations of the past in their days of greatness have assumed the responsibility for water resource development for navigation, flood control and irrigation as a sovereign function of the central government. Neglect of these duties has signalled their decline. As the invaluable reports of Senator Allen J. Ellender of Louisiana have so clearly shown, these lessons have not been ignored by the Soviet Union.

Ours has been a dynamic policy, conceived and applied as a flexible and effective instrument of public welfare in an expanding economy. Its dramatic success has been proven by performance.

Today, 94 percent of our population resides in the 38 States having access to water transportation. Two-thirds of our people live in countries at least half of whose area lies within 50 miles of navigable

water. A recent study by the Corps of Engineers of the 12 major active inland and intracoastal waterways in the United States, based on 1953 tonnages and costs, showed that annual savings of $391,800,000 exceeded annual charges of $55,800,000 by $336,000,000 or sevenfold. Vast expansion along our inland waterways of industry seeking reduced transport costs and more adequate water supply is a familiar fact of our recent economic history.

The American Waterway Operators Association reports that in the 7 years ending in 1958, 2,892 new plants and plant expansions have been constructed at inland waterway sites. In the counties bordering the Ohio River and its navigable tributaries alone, since 1950, some $15 billion have been invested in major new and expanded plant facilities.

Industrial development of these proportions bestows benefits widely diffused throughout the national community in the form of increased job opportunities at higher wage levels, lower prices to consumers, improved farm income and broadened opportunities for private enterprise—extended throughout all regions of the Nation and all segments of the economy. Indeed, contrary to popular supposition, the railroads themselves appear to be notable beneficiaries of industrial development stimulated by waterways improvement as reflected in the postwar experience of the eight major railroads serving the Ohio and Mississippi Valleys. Both in freight volumes and in revenues, they have substantially exceeded the national average.

I wish to draw your attention to the systematic analysis of the broad scope of benefits diffusion made by Dr. Joseph R. Hartley of Indiana University and published early last year under the title, "The Economic Effects of Ohio River Navigation." Dr. Hartley's study fully demonstrates also the value of waterways improvement in the field of regional development and depressed area rehabilitation.

In the fullest sense, the established free waterways policy of the United States has been abundantly vindicated by concrete achievement. Its outstanding values have been most conspicuously demonstrated in its effectiveness for dealing with problems of an expanding economy, essentially similar to those which we seem destined to confront on a larger scale in the years ahead.

The present and future needs of the Nation for economic and community development are so challenging as most urgently to counsel a rededication to this policy in keeping with our traditions of growth and freedom of economic opportunity. We are on the threshold of an explosive increase in population growth with a consequent need for enormously expanded employment opportunities, which will require a scale of private capital investment hitherto unimagined.

We also face in the immediate future an intensified competitive struggle, not only with the Communist world, but with the expanding industrial power of the nations of the free world in both domestic and foreign markets—and this at the very time when we are called upon to maximize our export trade. Inflation threatens to be a continuing menace to sound economic development. In such a period, we will be compelled to make maximum use of our natural resources, to encourage private investment, to improve our productive efficiency and to facilitate the orderly adjustment of regional populations and of areas depressed as a result of rapid technological change.

Clearly, our waterways policy must be geared to our future needs; short-range shifts of policy in an area so basic to our economic life would cause intolerable waste, chaos, and confusion. In 20 years, our population is conservatively projected in the neighborhood of 250 million persons, including a vastly increased labor force. By 1980, gross national product is estimated to reach $741 billion in dollars of 1954 purchasing power, nearly double the level of 1958. At that time, it is predicted by the National Industrial Conference Board, the Nation will require a gross private domestic investment of some $110 billion in a single year to support our growing population at rising standards of living and to provide jobs for the expected annual increment to the labor force. This will represent an increase of more than 100 percent in the current annual rate of such investment. Twenty years hence, the requirement for inland waterway transportation at present rates of growth, will be in the neighborhood of 300 billion ton-miles per year, in contrast with a present volume of 115 billion.

In the light of these expectations, elementary wisdom demands a rededication to our free waterways policy which has so brilliantly proven its effectiveness as a foundation and stimulus for a soundly expanding free enterprise economy.

In sharp contrast with our established policy, the user charge is in essence a device for limiting and restricting the future improvement and development of the Nation's waterways. One of the central contentions of the proponents of this device is that it would provide a yardstick for economically correct allocation of resources. This is a gross misconception. Application of the waterway user charge in project evaluation would result in comparison of the full cost of the waterway improvement and related transport service with the partial cost of rail transportation. For, under this scheme, the project would be constructed only if the anticipated toll revenues were sufficient to cover total costs and any realistic estimates of such revenue would be scaled down in the foreknowledge that railroad rates would be depressed to less than total costs of the alternative rail service. This, as you know, is the pervasive tendency of established rail rate policy, a tendency which promises to be accentuated in the future.

Thus, the waterway improvement would have to justify itself on the promise of coverage of full costs as opposed to only partial cost coverage by the alternative mode. This is in direct contrast with accepted benefit-cost ratio analysis which compares total benefits with total costs. Thus, the users charge method of resource allocation is inherently unsound and could not fail to result in the waste of natural resources.

It would inevitably mean that many sound projects would not be built; that many sound existing projects would be abandoned, and the public deprived of important values and benefits. It would mean, also, that funds would be channeled instead into inherently less desirable alternatives, to the long-range detriment of the national economy.

Application of the user charge would also waste national resources through underutilization of site potentials, already limited in number through industrial and community growth. Each proposed project would be scaled down to only that capacity which would pay for itself

under a narrow commerical evaluation, leaving unexploited additional capacity potentials of waterway flow and land contours. Furthermore, project capacity itself would be underutilized. The costs of constructing and operating a navigation facility are almost entirely fixed and independent of the volume of traffic. It is, therefore, in the national interest that each facility be used as near to capacity as possible to maximize the public benefits. A user charge by discouraging traffic would withhold these benefits without a corresponding reduction in costs. This loss would be compounded by traffic diversion resulting from competing rail rates set below full costs.

The Nation, confronted as it will be with tremendous demands upon its resources in the years ahead, cannot afford to waste its assets; we must insist upon sound criteria for the optimum utilization of our resources. The user charge approach, with its deceptive plausibility, is calculated to lead us into grave and costly error.

Adoption of the user charge approach would sharply restrict the discretion of Congress to employ waterway improvements for broad purposes of public policy. Determination of improvements on the basis of narrow commercial standards, bureaucratically administered, would place the Government in business on an enormous scale as a vendor of services. Important public values which the Congress has sought to achieve through application of the free waterways policy would inevitably be sacrificed.

One of the preeminent functions of the Congress in the coming era of rapid expansion of population and economic growth will be the continuation of its historic role in general resource development. Under the user charge doctrine, improvement could be justified only where predictable toll revenues from assured traffic could cover project costs. Thus, regions rich in resources but now lacking adequate low-cost water transportation for their development, would be condemned to stagnation and the national economy deprived of their long-range potentials.

The Congress must retain its discretion to consider in broad perspective the long-range interests of the Nation, unhampered by limiting considerations of shortsighted commercial interest.

Our previous discussion has indicated the waste of resources inherent in the waterway user charge proposal. But it is probable that the major economic waste would occur from the violent industrial dislocations in the national economy which a user charge would precipitate. Even if user charges were limited to recovery of operation and maintenance costs, as recommended by the Hoover Commission, the costs of many inland waterway movements would be increased by as much as 25 to 50 percent.

This assumes that waterway traffic volumes would remain constant. The fact is, of course, that user charges coupled with below-cost rates of competing carriers would drive large volumes of traffic from the waterways, resulting in increases in toll rates on the remainder to maintain constant toll revenues. Thus, the tolls system would progressively dry up the traffic on which tolls were imposed. This is a shocking example of the destructive taxation—a tax with no return. Over many years, vast aggregations of private capital have been committed to industrial locations along the waterways on the hitherto well-founded assumption of continuity of our free waterways policy.

Major portions of these would become uneconomic, and a program of wholesale abandonment would inevitably follow, subject only to the time lapse of a liquidation process.

In their impact on domestic commerce, tolls would be essentially the same in their economic effects as internal tariff barriers which the Constituion forbids. Like tariff barriers, they would tend to shrink the markets available to industry, to defeat the economies of specialization in industry and agriculture and to regionalize trade, dividing the country into restricted economic provinces shut in by toll gates and economic barriers.

In the statement which we are filing with your committee, we have drawn attention to the major sacrifice of competitive status which user charges would impose upon the steel industry and coal mining throughout the Ohio Valley as illustrative of this prospect. In addition to the direct impact of the user charge, the rates of competitive modes of transportation, now water-depressed, would be raised, imposing a further injury upon valley industries.

A major waste of capital facilities in the transportation industries would attend this convulsion. Much of the investment in the modern barge fleet and related facilities wolud be permanently destroyed as a result of user charges accentuated by competition, with below-cost rail rates. In the face of this destruction, heavy demands would be placed upon capital funds, already inadequate, or other modes of transportation. The lack of surplus freight-car capacity is a well-known feature of our transportation problem. To construct railway freight-carrying cars adequate to handle the rail-adapted freight now carried by the rivers and canals would call for an investment exceeding $1.7 billion.

Pipeline investment sufficient to handle petroleum and products now moving on the inland waterways would be three times as great as that in petroleum barges and related facilities. Capital now committed to water transportation would be thrown away at the cost of vastly greater amounts of capital to provide substitute carriage.

The free waterways policy has proven an effective instrument in the hands of the Congress for the attainment of national security objectives. The dramatic contribution of our free waterways system to the war effort in World War II is an outstanding chapter of our history. Reversal of this policy through a system of user charges will necessarily discourage the dispersion of industry in the relatively protected interior of the country along our waterways in the age of nuclear-missile warfare, when such dispersion is urgently required to assure survival and retaliatory potential.

In contrast to the free waterways policy which is cost reducing in its long-range effects, a waterway user charge would contribute in a unique and dangerous manner to inflationary pressures which are already an impediment to balanced growth.

A major portion of the commodities carried on the inland waterways are basic industrial materials and fuels, such as steel, coal and oil, whose cost enters into a limitless variety of finished products, including electric power, so that an increase in the delivered cost of these materials would communicate itself into all consumer markets. Furthermore, the resulting increase in costs would far exceed the amount of the user charge itself. For competitive transportation

rates would inevitably rise in response to the imposition of waterway tolls.

We wish especially to direct the attention of the committee to that portion of our statement dealing with the gross discrimination against economic development in the Southern States implicit in the user charge proposal.

About 72 percent of the tonnage carried on our rivers and canals moves in waters which are primarily southern, and any program to constrict development based on waterway transportation threatens the future of the South more seriously than that of any other region. Now that the communities of the South stand on the threshold of full participation in income standards prevailing elsewhere in the Nation it is most crucial that no impediment be placed in the path of their continued progress.

The problem of user charges cannot be considered in relation to inland waterways alone. Federal outlays throughout our history on the Great Lakes and ocean harbors have been substantially equivalent to those on our rivers and canals. The delicately balanced competitive relationship of many industries, as between deepwater and shallow-draft transportation, prohibits the imposition of user charges, even as an initial step, on one waterway system and not on the other.

User charges on the deepwater harbors would gravely impair our foreign trade position and invite retaliation against American shipping abroad. On the other hand, exemption of foreign commerce would discriminate intolerably against domestic production. Even if tolls were imposed on foreign shipping, imports would be given a discriminatory advance over domestic commerce. American products moving in intercoastal trade into American harbors would be burdened by a user charge at both port of embarkation and port of destination. Imports would pay a toll only at the destination port. Prejudice to domestic production would be even more extreme in the case of materials moving over inland waterways to markets in competition with imported commodities. Thus, discrimination against domestic commerce is inherent in any tolls system. In an era of intensified international rivalry, the user charge proposal is the counsel of folly.

It is not surprising in the light of the manifest and widespread injury to the national economy, which would certainly result from imposition of waterway tolls or user charges, that the Corps of Engineers concluded its 1958 study of this issue with these words:

> If the Nation should impose user charges, it would lose more in benefits than it would gain in revenues.

The vigorous development of our water courses has been in the past one of the principal means for creating economic opportunity and for the building of national wealth by the private enterprise of individual citizens.

In 1960, facing as we do an explosive increase in our consuming population and in our labor force, confronted with the potentials of technologies heretofore unimagined, and challenged by the rivalry of foreign ideologies, the Nation demands a level of vision and courage in the sound development of our water resources unprecedented in our history. The magnificent achievement of past foresight and initiative is the ideal model for our future policy.

A policy of waterway user charges violating pledges and principles older than the Republic would be a disastrous mistake, wasting our resources and imposing shackles on their future development. We cannot afford to retreat. The needs of the future demand a vigorous reaffirmation of the free waterways policy which has contributed so greatly to the building of America.

Senators, we have to present to the committee in addition to this statement which I have just tried to outline, statements on related issues from the Olin Mathieson and Ormet Cos., which have made enormous investments in aluminum and chemical fields; a statement from Mr. Daniel Heekin, who is chairman of the Ohio River Committee of the Cincinnati Chamber of Commerce; from Charles T. Jones on behalf of both Amherst Barge Co. and the Amherst Coal Co.; a statement by Mr. W. Armin Willig, American Commercial Barge Line Co.; a statement by Everett Wells, president of Ashland Oil & Refining Co.; a statement from Prof. Marvin J. Barloon, which has already been referred to by Mr. Mack; a statement by Mr. Dave Mathews, on behalf of the Pittsburgh Coal Exchange; and a telegram from Mr. John Deasy of the Weirton Steel Co. and Mr. Robert E. Reed of Wheeling Steel Corp.

Mr. Kenneth Lloyd, who is the executive director of the Mahoning Valley Industrial Council, has been invited by the committee to appear today, but he regretted very much because of illness he could not come.

But he requested leave to file a statement with the committee later in Washington, Mr. Chairman.

The CHAIRMAN. Very good. These statements will be received. They will be analyzed by the staff and such portions of them as are appropriate to this hearing and not repeated will be included in the record.

Mr. HULL. Thanks very much, Mr. Chairman.

(The statements referred to follow:)

STATEMENT OF N. H. COLLISSON, VICE PRESIDENT, OLIN MATHIESON CHEMICAL CORP., AND PRESIDENT, ORMET CORP.

Mr. Chairman and members of the committee: My name is N. H. Collisson. I am vice president of Olin Mathieson Chemical Corp. and president of Ormet Corp.

Olin Mathieson is a large diversified industrial corporation engaged in the chemicals, packaging, and metals businesses, among others. We have approximately 37,000 employees.

Ormet Corp. is jointly owned by Olin Mathieson and Revere Copper and Brass Inc. It was formed in 1956 to construct, own and operate primary aluminum production facilities. Ormet's operations and a substantial segment of Olin Mathieson's activities are based upon the existence of low-cost water transportation. Indeed, Olin Mathieson and Ormet have 20 waterside facilities at 15 plant locations on the waterways of the United States. In choosing the waterside locations, we were guided by the assumption that the traditional U.S. policy of free use of the waterways would not be changed.

These plants receive by water approximately 3 million tons of raw and processed materials per annum and generate overland tonnage from these facilities in the approximate amount of 2,300,000 tons. We also bring in substantial tonnages of many materials and supplies to the waterside plants via rail and truck services.

Principal inbound commodities are: sulphur, sulphuric acid, phosphate rock, superphosphate, oyster shell, caustic soda, salt, aluminum, bauxite, alumina, alumina hydrate, fertilizer, fertilizer materials, ethylene glycol, alcohol, soda ash, pulpboard.

Principal outbound products overland are: fertilizer, soda ash, caustic soda, anhydrous ammonia, hydrazine, hydrazine compounds, nitrates, chlorine, aluminum articles, aluminum pig, billet, and so on, superphosphate, sulphuric acid, nitric acid, muriatic acid, alum, petrochemicals, antifreeze, industrial phosphates, aluminum fluoride, hydrofluoric acid, uranium, corrugated containers and other corrugated board products.

In addition to the plants mentioned, there are some eight facilities at which inbound waterborne products are stored, packaged and distributed overland. These rely for their existence upon the low cost of inbound water transportation.

Our plants on the Ohio River for the production of aluminum, chemicals, and packaging materials are heavily dependent on the river as a transportation medium. These plants are located at Hannibal and Cincinnati, Ohio; Doe Run, Ky., and New Kensington, Pa. They are all operating in highly competitive industries and any significant increase in transportation costs would have a severe impact on our competitive standing. This, in turn, could have an unfortunate impact on the employment and economic health of the newly developed areas surrounding the Ormet and Olin Mathieson facilities in the Ohio Valley.

The transportation situation with respect to Ormet Corp., may be cited as an example. The Ormet aluminum complex, which is the Nation's fourth largest, represents an investment of more than $285 million. It includes an alumina plant at Burnside, La., on the Mississippi River, an aluminum reduction plant at Hannibal, Ohio, on the Ohio River, and three large bauxite ore ships. In addition to these investments, we have made long term commitments to lease the $16 million Burnside Bulk Marine Terminal, 36 barges and a 6,000 horsepower towboat, and to purchase bauxite in Surinam.

The three ore ships, with a combined carrying capacity of about 700,000 tons a year, were especially designed for transporting bauxite from Surinam, on the northeast coast of South America, to Burnside. The 36 barges and the towboat were built to carry alumina up the Mississippi and Ohio Rivers from Burnside to the reduction plant at Hannibal. Regular tows of alumina are made about 15 times a year. Each tow consists of 15 barges carrying a combined total of more than 23,000 tons of alumina.

The very lifeline of this whole operation in which over 3,700 people are employed is a 4,300 mile "all water" highway connecting the aluminum production network—2,600 miles from bauxite mines in Surinam to Burnside, La., and 1,700 miles on the Mississippi and Ohio Rivers to Hannibal, Ohio.

Ormet receives about 1,100,000 tons of inbound material per annum by water and generates overland tonnage approximating 180,000 tons a year.

It is of the utmost importance to the operations of Olin Mathieson and of Ormet and to the progress of the Ohio Valley area that sufficient funds be appropriated to improve the navigation facilities of the Ohio River. The appropriation of funds for the construction of modern locks and dams to replace the present outmoded installations will directly affect our operations in the following ways:

1. Decrease operating time by eliminating double locking tows.
2. Decrease operating time by eliminating total number of locks encountered.
3. Decrease transit time by increasing passing distance between locks.
4. Decrease damage to barges that is incurred in locking.

The Ohio River Valley is extremely dependent on the Ohio River for the industrialization of the area. The Ohio River, its channels and locks must be kept modern, not only as a transportation aid to industry and as an aid to local authorities in attracting new industry, but also as a national requirement in order to move, at a reasonable cost, extremely large quantities of material required in our national economic and defense picture.

Over 60 possible sites throughout the country were carefully screened prior to selecting the Ohio Valley for the Ormet aluminum plant and Olin Mathieson's adjacent aluminum rolling mill. Of major importance in the final decision was the factor of low-cost water transportation and reliance on continuation of our national policy of free waterways. This policy has contributed substantially to the economic growth and development of our country. A reversal of this policy by the imposition of tolls or user charges would cause serious dislocation of established industry and would impair industrial growth potential.

I respectfully urge this committee to adopt a legislative program designed to improve the navigational facilities of our waterways and to reinforce our historic national policy of encouraging transportation on inland waterways.

STATEMENT BY DANIEL M. HEEKIN, CHAIRMAN, OHIO RIVER COMMITTEE, CINCINNATI CHAMBER OF COMMERCE

My name is Daniel M. Heekin. I am a resident of Cincinnati, Ohio, the chairman of the board of the Heekin Can Co. and chairman of the Ohio River Committee of the Cincinnati Chamber of Commerce in whose behalf this statement is made.

I shall confine this staement to two subjects relative to the Ohio River; namely, navigation and prospective user charges.

The movement to canalize the Ohio River had its inception among a group of members of the Cincinnati Chamber of Commerce in 1895. The initial program of low lock and dam structure was completed in 1929. By that time some of the earlier structures were obsolete and sadly in need of repairs and replacements. A new program for navigation improvements consisting of higher lift structures at much longer intervals was developed and this program is now about 10 percent complete. Of the 19 new structures envisioned by the new program, work is underway on 6 projects and 1 additional project has been authorized but not yet started. When you gentlemen consider the economic improvement this navigation program has sparked in the 250,000 square miles of Ohio River Valley, and take into consideration the vast additional revenues received by the Government because of the industrial development in the Ohio Valley, you will understand our sense of urgency in completing the navigation program.

On the subject of the possible imposition of user charges, we in the Ohio Valley are very much concerned. Historically, the Ohio River has been free of toll; in fact, the ordinance of 1787 recites that the tributaries of the Mississippi River shall be common highways and forever free of any tax, impost, or duty. People in the Ohio Valley and others who use the river have had confidence in the pledge of the Government as above expressed in the ordinance of 1787 and have made tremendous investments on the basis of this faith. The economic development and the prosperity of the Ohio Valley have been based on the free use of the river. The steady increase in transporation costs has induced many industries using heavy, compact, raw materials, processing and shipping same, have come to the Ohio Valley to take advantage of water transportation the Ohio River provides to lower their costs and to materially enlarge their shipping radius.

We urge the committee most sincerely to keep faith with the citizens who have relied upon the pledge of the ordinance of 1787. The language of the ordinance is clear, direct, concise. No amount of legal hairsplitting can change it. Any attempt to abrogate this pledge would be a flagrant disregard of the fundamental principle of good faith, of confidence, upon which the Government of a free people must rest.

AMHERST COAL CO.,
Charleston, W. Va.,

SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES OF UNITED STATES

DEAR SIRS: Water is as fundamental to corporate interests as it is to personal everyday living. It is as important to the State of West Virginia as the coal which is mined and shipped to domestic and foreign consumers.

The Amherst Coal Co., is intimately interested in water conservation. Water is increasingly required in greater quantities for the extraction and preparation of coal for markets. Mechanization of the mining industry has necessitated the increased use of water beyond description. To prepare a ton of coal for market, it takes 15 gallons of water.

A positive water resources conservation policy and program is necessary to insure the continued production of timber in close proximity to mining operations.

Our concern and judgment dictates that water should be conserved and retained where streams originate and when surface water can easily be retained, thus insuring a mean water table for a constant source for local usage with a continued flow for further consumption.

The Federal Government must continue its policy of encouraging private citizens, State and local governments and business interests to make positive provisions annually to protect our water supply and watersheds. This program gives every American more direct benefits than most any other governmental function. Its continuance is necessary to both private and economic life.

Yours very truly,

HERBERT E. JONES, Jr., *Executive Vice President.*

AMHERST BARGE CO.,
Charleston, W. Va.,

SENATE SELECT COMMITTEE, NATIONAL WATER RESOURCES OF UNITED STATES.

DEAR SIRS: Coal constitutes one of the primary tonnages being transported over the inland waterways of the Ohio River Basin. Every year shows an increased coal tonnage. This trend will continue to grow as time goes on in view of the increased tonnage that the electric utilities anticipate burning in their newer plants located strategically on the inland waterways systems. Coal is moving to plants that have historically never received coal before, e.g., the Florida Electric Utilities. Furthermore, coal is moving via the waterways to seaports for exportation to foreign countries. The States of West Virginia, Ohio, and Kentucky have large areas wherein the entire economy and population is dependent upon coal's ability to move over the waterways of the Ohio River Basin. To safeguard the economy of these communities, it will be necessary in the years to come to provide water transportation facilities to accommodate additional tonnage in order that coal may stay competitive with the laborless fuels that are being produced in this country and imported from foreign countries for consumption in competition with coals, which is our country's largest single fuel resource.

To keep coal strong competitively, which in turn keeps our coal producing districts in satisfactory economic condition, it is neessary that it be transported to the consuming market at the lowest possible costs. Coal prices at the point of mining have remained constant for 2 years, while transportation costs have soared. To impose taxation on coal moving on the Ohio River and its tributaries or on any part of the Inland Waterway System, is imposing an unfair imposition on the coal producing States and the coal producing communities, located within the aforementioned States.

Many of the largest coal consuming industries today are so situated that they have a choice of fuels and their selection is entirely dependent upon costs of the fuel delivered to their furnaces. To increase delivered coal costs as much as a few cents per ton would assuredly culminate in the exclusion of coal from these plants. The coal industry is one of our Nation's strongest and most vital. Its continued strength is dependent upon its ability to continue business. To continue business, it must transport its commodities to the point of consumption at the lowest possible cost.

Very truly yours,

CHARLES T. JONES, *Executive Vice President.*

AMERICAN COMMERCIAL BARGE LINE CO.,
Jeffersonville, Ind., January 26, 1960.

MR. HARRY M. MACK,
Ohio Valley Improvement Association, Inc.
Cincinnati 2, Ohio.

DEAR MR. MACK: It has been called to our attention that the Senate Select Committee on National Water Resources is holding hearings in Indianapolis, Ind., on February 5 to consider the future development of water resources in the Ohio River Basin.

While substantial progress is being made on renovating and replacing the lock and dam facilities on the Ohio River, unless the pace is quickened, the growing demands on river commerce will soon be far ahead of the replacement program which is now underway.

So much industry has been concentrated along the Ohio River Basin that the needs for river transportation as well as adequate water supply are moving ahead by leaps and bounds. It would, indeed, be most regrettable if this flourishing industrial development were throttled by antiquated river facilities which would restrict the commerce of this area.

A fine start has been made on replacing these antiquated locks and dams, but it is obvious if any link in the chain is left outdated, it would only serve to negate the fine work that has already been done on the other facilities. A free flow of traffic must be maintained from one end of the Ohio River to the other to get the full benefit from these improvements.

Future progress in the Ohio River Basin, with its great impact on the national welfare, depends upon an adequate water supply and modern navigational facilities. We hope that the Senate Select Committee on National Water Re-

sources will not only vigorously push the further development of this great natural resource but also will use its influence to keep it free from tolls or user charges which would serve to reduce its benefits to the public.

Yours very truly,

W. ARMIN WILLIG, *Vice President.*

STATEMENT OF EVERETT F. WELLS, PRESIDENT OF ASHLAND OIL & REFINING CO.

By name is Everett F. Wells. I reside in Ashland, Ky. I am president of Ashland Oil & Refining Co., a Kentucky corporation with its principal office at 1409 Winchester Avenue, Ashland, Ky. We welcome this opportunity to express to the committee our company's strong support of accelerated water resources development in the Ohio Valley and of continued adherence to the established American free waterways policy.

Our company began its operations in the refining of crude oil 36 years ago with a 1,000 barrel a day refinery at Catlettsburg, Ky., on the Big Sandy River near its confluence with the Ohio. Availability of low-cost water transportation has been a dominant factor in the establishment and development of our business. Initially, we looked to the river as an economical means for outbound movements of finished products. As the volume of our business exceeded the diminishing quantities of crude oil available from eastern Kentucky, the river became also the channel of crude oil movements for our expanding requirements. We pioneered the development of efficient barge transportation for large volume movements of crude oil and refined products.

During World War II, the Government, seeking protected interior sites with economical transportation for aviation gasoline plants, chose the site of our refinery for a major 100-octane plant because of the availability of efficient inland waterway transportation.

Subsequent expansion of our refining facilities at Catlettsburg has been similarly influenced by access to distant markets and crude oil sources by efficient low-cost water transportation.

Today our refineries at Catlettsburg have a crude oil processing capacity of 80,000 barrels daily and represent our largest manufacturing installation. About 90 percent of all crude oil for these operations reaches the refineries by inland waterway—a considerable part originating below New Orleans on the Mississippi River. About 75 percent of the refined products manufactured at Catlettsburg are moved by barge to terminals on the Ohio and Mississippi Rivers and their tributaries and thence overland by rail or truck to ultimate destinations. Our fleet of 9 towboats and more than 100 barges is one of the largest tank barge fleets on the inland rivers. It serves our refineries at Louisville and Freedom, Pa., as well as our Catlettsburg facilities. We also make extensive use of contract carriage in serving our requirements. Modern river transport enables us to transport finished products from Catlettsburg to any point on the 981-mile length of the Ohio for less than the cost of moving the same products by rail or truck from Catlettsburg to Ashland, a distance of 10 miles. Our river refineries at Louisville, Catlettsburg, and Freedom are connected with our refineries at Canton and Findlay, Ohio, by water transport and products pipelines with attendant operating flexibility and efficiency. Our refineries at Canton, Ohio, and Tonawanda, N.Y., supply important quantities of finished products to customers on the Great Lakes where we operate a fleet of tankers.

Thus, low-cost water transportation has been a decisive factor in the growth and development of our company. In considerable measure it is on the basis of this factor that we have been able to grow to our present size—with 6 refineries having aggregate crude oil capacity exceeding 160,000 barrels daily, annual sales of more than $300 million, some 5,000 employees and more than 40,000 stockholders.

The growth of our company is representative of a wide range of expansion in such basic industries as steel, electric power, chemicals, and aluminum throughout our river valleys. Where the bulk transport requirements of a firm are adapted to river movements, cost factors permit investments to be made on a scale that could not otherwise occur, and the national economy obtains a net increment to its production capacity, with associated increases in employment opportunities, and expanded supplies of goods and services at reduced prices. The additional public benefits resulting from dispersion of such strategic installations throughout the interior of the country are of major importance to our national security.

The oil industry is characterized by intense competition. Consequently, savings in transportation costs are quickly passed on to the consuming public in the form of reduced prices of gasoline, heating oil, and countless other petroleum products. This is evidenced by the fact that, along the Ohio River, prices of these products are lower at river ports than at inland points, rising in relation to overland transport costs from water terminals.

Indeed, water transportation of petroleum and petroleum products on the Mississippi and Ohio River systems is a basic factor in determining the prices of petroleum products throughout the valley States. A substantial part of the waterborne supplies from the gulf coast moves to the river terminals of independent jobbers and distributors who are aggressive in price competition. Ashland Oil sells a large part of its output of gasoline, heating oil, and other products to such independent marketers. They receive substantial quantities from other refineries in the Midwest. These competitive supply relationships assure that any significant savings in river transport costs are promptly translated into lower prices to consumers, not only on products actually transported by river, but to a substantial degree over the whole range of products, regardless of source.

It will be apparent that the benefits of water transportation of petroleum and petroleum products, which represent about one-third of all traffic on the inland rivers, are spread widely throughout the economy and are of enormous extent.

These public benefits in the form of more abundant goods and services at reduced prices are typical of a wide range of basic commodities moving on the inland waterways. But just as the benefits are of enormous magnitude and extent, so impairment of the efficiency and utility of water transport would inflict corresponding extensive injury upon the national economy. It is for this reason that we desire here to record our conviction that the future welfare of the Nation requires continued adherence to America's established free waterways policy and the rejection of all proposals for imposition of waterway tolls or user charges.

Our company's situation relative to water transportation is, we believe, illustrative of the dislocative and destructive consequences inherent in any system of water way tolls or user charges in whatever guise, whether in the form of ton-mile charges, license fees, fuel taxes or otherwise. All such user charge proposals contemplate as a minimum, whether initially or ultimately, recovery of the Government's costs of operation and maintenance of federally provided navigation facilities. Some contemplate recovery of all or part of the capital costs of such improvements. According to the best estimates available to us, our water transportation costs under such proposals would be increased by at least 25 percent. As a practical matter, such charges would be substantially higher. They would undoubtedly be increased to maintain revenues as traffic was driven from the rivers as a result of the initial charges coupled with below-cost rates of competing service by other modes of transportation. The initial toll charges, moreover, would be the subject of constant upward pressure from competing carriers. And the familiar history of the gasoline tax and the income tax warns of the powerful tendency to increase taxes to excessive levels even when initially imposed at moderate rates.

Confronted with cost increases even of the order of 25 percent, petroleum traffic on the waterways could not survive. Firms dependent on water transportation in competition with firms utilizing pipelines would be forced to shift to pipelines in order to preserve their markets. In our own case, such a shift—just to provide pipeline facilties for crude oil to our Catlettsburg plants—would require expenditures many times the cost of equivalent barging equipment, coupled with the abandonment costs of present towboats and barges and related shore facilities, representing an investment of millions of dollars. For the industry as a whole, the inevitable results of such an enforced abandonment of existing barging equipment and related terminals and other shore facilities, accompanied by substitution of pipeline facilities involving far higher capital charges, would add greatly to cost burdens. These burdens would not only inflict a severe injury on the petroleum industry; they would ultimately result in higher prices and less efficient service to the consuming public.

For petroleum industry waterborne traffic, not adapted to pipeline movement, tolls would represent an addition to costs which would ultimately be reflected in the price level, not only of waterborne materials, but of products from competing sources. Thus, the steel industry in the Pittsburgh-Youngstown district would face an increase which might well exceed a cent per gallon in cost of all residual fuel oil for its open-hearth furnaces, regardless of the source

of the fuel. Prices for this product in the Middle West, where local supplies must be supplemented from the gulf coast, reflect the gulf coast markets plus barging. An increase of 1 cent per gallon in residual fuel oil costs would increase the cost of steel manufacture by about 30 cents per ton.

Similarly, tolls or user charges on the ocean harbors would inevitably be reflected in prices to consumers, not only on the vast quantities of crude oil and products moving from the gulf coast and foreign origins to the eastern seaboard, but also throughout the interior of the country where prices are directly related to gulf coast markets. It must be assumed, of course, that equity and justice would forbid imposition of tolls on the inland waterways without corresponding charges on the Great Lakes and ocean ports improved at substantially equal Federal cost.

These considerations illustrate the far-reaching dislocative, wasteful, and inflationary consequences which must inevitably result from imposition of waterway tolls upon the major commodity movements of industrial installations established in reliance upon our historic free waterways policy. Indeed, the railroads themselves, and the trucklines, would be among the principal sufferers, for they would sustain severe losses in high value finished goods traffic from river-based industries depressed by tolls. Such losses, in our judgment, would more than offet any short-run gains in bulk traffic which they may be able to capture under a tolls system.

Again, our company's position is illustrative. During the first year of our operations, we paid railroad freight bills amounting to about $30,000. Last year our railroad freight charges aggregated approximately $2,500,000. If tolls are imposed, bulk movements of petroleum will be shifted to pipelines, not rail, and higher costs will constrict and retard our operations, so that we will have a reduced output of finished products adapted to rail or truck.

We urgently request this distinguished select committee to reject all proposals for waterway user charges as a shocking breach of the pledged word of our Government, which would do incalculable harm to the national economy, and to reaffirm our free waterways policy which has made such an outstanding contribution to our national welfare.

We desire also to record our firm support of the recommendations of the Ohio Valley Improvement Association, submitted to your committee, for acceleration of water resources development throughout the Ohio River Basin.

This testimony demonstrates the need for more rapid action to modernize the Ohio River, whose outmoded and obsolete locks and dams are already imposing an excessive cost burden on existing traffic. The inadequacies of the existing system will soon result in the termination of further traffic growth and thus impede and discourage industrial expansion based on low-cost water transportation.

The Ohio Valley Improvement Association's proposal for an accelerated program of flood protection and water storage facilities also has our full support.

These programs are of importance not only to the protection of life and property but to the economic growth of the Ohio Valley and the Nation. Failure to pursue such programs at rates commensurate with the expanded needs of a growing population must inevitably result in retardation of essential economic and industrial development.

STATEMENT OF DAVID MATHEWS, JR., EXECUTIVE VICE PRESIDENT, THE PITTSBURGH COAL EXCHANGE, PITTSBURGH, PA.

Hon. ROBERT S. KERR,

Chairman, Select Committee on National Water Resources, U.S. Senate, Washington, D.C.

DEAR SENATOR: Water is our Nation's most important natural resource, not only in sustaining life for our people but also in making possible the great industrial empire along the river valleys. From the very beginning of the Republic, Congress has been infinitely wise in developing the river basins for industry and commerce. Planned, intelligent control of our water resources is the wisest kind of investment that can be made in the future of America.

A glance at the record of industrial development and the growth of commerce on the inland waterways, especially in the Ohio River and its tributary valleys, would convince even the most casual observer of the importance of the rivers to the national welfare. Since canalization of the Ohio River, tonnages have soared

far beyond the wildest expectations and industrial and municipal use of water has reached staggering proportions. The projected need for water in future decades is almost appalling. We cannot afford to wait any longer to accelerate an improvement program.

From a transportation viewpoint, the Ohio River with its more than 80 million tons of traffic is fast reaching the saturation point as far as the amount of traffic the antiquated locks and dams can handle. The industrial growth of the valley makes it imperative that these old structures be replaced as rapidly as possible. The key to successful business is low-cost distribution of products and equally low-cost receipt of raw materials. It is not happenstance that industry has thronged to the navigable waterways. The advantages of low-cost transportation and a stable, controlled supply of water for industrial use afforded by canalized streams has made America prosperous. There is a great reciprocity of trade between ports on the upper reaches of the Ohio and its tributaries and the ports to the South and Southwest. Were it not for the river, industry at the extremes of the river valley could not compete in the markets where they do the major share of their business today.

Drastic changes have taken place in river transportation methods and equipment since the Ohio River locks and dams were first put to use. Streamlined barges pushed by more powerful towboats in larger and heavier tows have outstripped the modernization of the lock and dam system by far. The small locks which were originally designed for only downstream traffic, which now is more than equaled by upstream tonnage, can no longer cope with modern transportation methods and equipment. They should be replaced as quickly as plans can be drawn and funds made available.

In formulating a policy for future waterways development, it is most imperative that nothing be done to destroy the effectiveness of the waterways system by imposing some sort of tolls or user charges on river traffic. Such an act would upset the whole economy of the Nation, disrupt markets and dislocate employment. Benefits of river development accrue to all of the people and to the Government as well. Many mills and factories along the Ohio River and its tributaries use more water per day than great municipalities such as Pittsburgh and Cincinnati. Were there no locks, dams would still have to be maintained to provide stable pools or else neither industry nor the people themselves could exist. The people have prospered and the Government has received enormous revenue from industries and individuals because of the canalized rivers. It would be the height of folly to destroy this pattern of economy by imposing discriminatory charges on just one segment of that economy. The whole Nation would suffer as a result.

WEIRTON, W. VA. *February 3, 1960.*

HARRY M. MACK,
Chairman, Ohio Valley Improvement Association, Inc.:

Please register our views as follows at the Senate Select Committee on National Water Resources Hearings in Indianapolis on February 5. The location of Weirton Steel Division of National Steel Corp. on the Ohio River was based on the importance of availability of adequate water supply for operation of steel mills and the transportation on navigable waters of our inbound raw materials and outbound finished products. Incident thereto is the building up of a community of people on the banks of the Ohio requiring water facilities for their existence and extending the use of same for recreation. The continued development and maintenance of these water resources is essential to the well-being of our people, our industry, and our future planning. 1959 we moved approximately 3½ million tons by water to and from our plant. This has been a continued growth over the years and will increase with future expansion of our plant providing the water resources are likewise expanded. Any relaxing of water resources development will definitely affect our industry with resultant deterioration of the community, and we, therefore, urge all possible acceleration of navigation improvement programs for the Ohio River and tributaries, and believe that the imposition of tolls or use charges would have a serious and detrimental effect upon the entire area and its economy.

J. K. DEASY,
Vice President, Weirton Steel Co.
ROBERT E. REED,
Wheeling Steel Corp.

The CHAIRMAN. The Honorable J. Roy Dee, president, Wabash Valley Association, Mount Carmel, Ill. Are you Mr. Dee?

Mr. GETTINGER. No, I am George Gettinger, our executive vice president of the Wabash Valley Association.

Mr. Dee was physically unable to attend and asked me to present the statement.

The CHAIRMAN. Mr. Gettinger?

Mr. GETTINGER. Yes, sir.

The CHAIRMAN. Come around, Mr. Gettinger.

Senator Hartke says you are a man of fine character, standing, reputation, and dignity; and besides that, you are a friend of his.

Mr. GETTINGER. Thank you, Senator.

STATEMENT OF GEORGE GETTINGER, EXECUTIVE VICE PRESIDENT, WABASH VALLEY ASSOCIATION, PRESENTED ON BEHALF OF J. ROY DEE, PRESIDENT, WABASH VALLEY ASSOCIATION

Mr. GETTINGER. We in the Wabash Valley Association are truly a nonprofit association, and, Vance, I think you would not question that as a charter member of our organization.

We of the Wabash Valley Association feel that for the last 150 years, Senator, we have been neglected. Flood controls up and down our river are practically—well, we practically have none. At the minute we are beginning to get started, and the association is organized for the purpose of bringing more attention to our valley and to our people.

This watershed of the Wabash River covers about one-third of the State of Illinois and about 80 percent of the State of Indiana. The tributaries of the Wabash River cover the entire part of the State of Indiana.

We believe that we must start and have a comprehensive flood control program all over the valley in order that all of our people may receive the benefits of it. We have had a tremendous amount of help from the Army Engineers and, at the present time, the Soil Conservation Service through their small watershed projects are doing a tremendous job. However, they are understaffed in Indiana too.

And the survey crews and parties are not sufficient to cover all the applications that they have in the State of Indiana and now in the soil conservation work.

So we urge you to add to their appropriation and see that they do have an ample money supply to carry on and help promote a small watershed program as well as ample flood control up and down our river and various tributaries.

You have appropriated some money for reservoirs in the northern part of Indiana, for which we are very thankful and grateful; however, there is not much work going on at the present time. We would like to ask that you speed those up in order that we can hold the water back in the northern part of the State, using it there as an industrial help to those communities as well as control the floodwaters in the river below.

We believe in trying to analyze and answer part of your questions that you submitted to us. "How much water development is needed?"

We, of the Wabash Valley Association, believe that every inch of water that we have at the present time should be conserved and developed to the fullest extent in order that the people in 1980 or 2000 might have a decent start with their water resources.

"When is it needed?"

We have needed it for the past 150 years and I think you gentlemen are well aware of that fact.

In fact, up and down the Wabash Valley today for the first time I believe we have an aroused citizenship that do expect outside help in controlling this water problem and doing something about it.

Did you ever stop and think just exactly where this Wabash River Valley is?

We are right in the very heartland of America, the very place in case of a national disaster that everyone would have to turn. We have abundance of natural resources that would be available to all of our country. We have the most fertile valley in the whole United States, if we can control these floodwaters, and we ask you to give this your honest consideration and your help in bringing about a program in this valley that would do all of our people for the entire United States the most good.

Thank you so much for your attention.

The CHAIRMAN. Thank you, Mr. Gettinger.

Senator HARTKE. I might say this: He was talking about the aroused citizenry part of that. That is due to the executive director, Mr. Gettinger, who is doing a marvelous job of traveling up and down the valley telling the people the story about the Wabash Valley. I think it is a fine thing for Indiana.

The CHAIRMAN. We see we have been singing in "Oklahoma" about the Wabash Valley for a long time and I think it is appropriate that we become a little more practical in the attention we pay to the Wabash instead of just singing about it in a romantic mood.

Mr. GETTINGER. Thank you, Senator.

The CHAIRMAN. I think it is wonderful that you are pressing for the development of that great area.

(Mr. Dee's prepared statement follows:)

STATEMENT BY J. ROY DEE, PRESIDENT, WABASH VALLEY ASSOCIATION

Mr. Chairman and members of the committee, my name is J. Roy Dee, president of the Wabash Valley Association; a nonprofit organization which was incorporated in Indiana in 1957 to represent the 2½ million citizens, their organizations, cities and towns of the Wabash River Valley in Indiana and Illinois.

During the 3-year period of our existence the membership of the association has grown to over 2,500 members and I am here to represent that membership today.

Our association believes that controlled water is the key to future economic development in the Wabash River basin. This basin involves two States and therefore, we have been very active in sponsoring and promoting the Wabash Valley compact which was passed by the State legislatures in Indiana and Illinois in their 1959 general assemblies. The consent bill in this compact was passed by the 1959 session of the 86th Congress and signed by the President of the United States September 23, 1959.

We feel that the Wabash Valley Compact Commission which is now in existence with seven members each from the States of Indiana and Illinois and one Federal representative will do much to coordinate the activities of the separate State agencies, universities, and Federal Government in studying the effect of controlled water of the Wabash River basin.

To estimate the supply and future demand for water is an absolute essential to the future development of the Wabash River basin and, therefore, the Wabash Valley Compact Commission is faced with this very problem. We believe low streamflow or a lack of water in our streams will be equally as important as flood control to the citizens of our valley in 1970.

We further believe that through coordinated planning and intelligent research, we hope to find the answers to:

1. What is the total water capability of the Wabash River basin, both surface and ground water with respect to the quantity and quality?
2. What is the total of existing water uses by type, sources, and geographical location?
3. What will be the total requirement of the basin 25 and 50 years hence by type and use of geographical location?

Floods in the last 2½ years have caused damages exceeding $60 million to farm crops alone in the Wabash River basin. We know this disastrous condition existed since the discovery of the Wabash River. In comparison with other major rivers, Federal effort and expenditures on the Wabash River have been relatively small.

We feel that the water flooded over farmlands throughout our valley needs to be conserved in retention reservoirs upstream for future use in lowsteamflow for industry, agriculture, and domestic use. We feel that not only large reservoirs, but small watershed projects under Public Law 566 along with farm ponds with water supply reservoirs should be studied as a means of modifying the flow available from streams and to improve the availability of water for navigation as well as domestic, municipal, irrigation, and other localized use.

Our association recognizes the fact that pollution control is extremely important in future water resource development in our valley. The quality of water and its management becomes more vital as the basin develops. Both surface and ground water conserved by prevention of pollution in reality adds to the total supply available for various uses. Several municipalities and industries are finding it difficult to operate, not only because of inadequate water supply but because their sewage and waste treatment facilities are inadequate to protect the receiving streams.

In many instances, improved treatment is necessary but in others low flow augmentation may be required if cities and industries are to expand and to meet the minimum qualification for pollution. Pollution control programs of both States should be supported with increasing effort to insure water of good quality for all existing uses and future use. Public awareness programs should be conducted wherein citizens, public officials, and industry are advised of the help and economic necessities of clean water. We feel that this is one of the responsibilities of an organization such as ours; to be active in bringing pollution control to the attention of the citizens of our great valley.

We feel that a comprehensive study of the total water requirements in the Wabash River basin has never been made. We feel that a comprehensive survey of the past and present water uses should be completed.

The program of flood control for the protection of future generations can provide for structures of multiple-purpose use—flood control and low streamflow combined.

We wish to stress the fact before this committee, that in future deliberations on appropriations to be used for flood control purposes water conservation should be kept uppermost in your minds to the extent that many of the great areas within our own valley may remain static or even perhaps cease to exist because of our inability to provide for an adequate water supply in the next 25 years in the Wabash River basin.

We feel that low streamflow regulation should be a part of the flood control program administered by the Corps of Army Engineers and be included in the appropriations by the Federal Government due to existing conditions we have in our present watershed. In the Monroe Reservoir, it will be necessary for the State of Indiana to expend some $5 millon for low streamflow benefits and other enhancement values and the Federal Government to expend some $4 million for flood control. However, this same water will travel down the White River and junction with the Wabash which forms a boundary between the State of Indiana and Illinois, giving Illinois the use of this water, at no cost to the State other than their proportionate share of Federal appropriations. Our association feels low streamflow is the responsibility of the Federal Government and should be taken into consideration in future reservoirs planned throughout river basins such as our own.

In summary, Mr. Chairman, I would like to emphasize:

1. That a thorough study by State and Federal agencies needs to be made for the purposes of determining the water capability of this basin.

2. What are the existing water uses?

3. What will be the total requirements 25 to 50 years from today in this basin?

We have taken it upon ourselves to bring about the body known as the Wabash Valley Compact Commission which we hope will coordinate the activities of these two great States of Indiana and Illinois with the Federal Government in finding the answers to these problems as soon as possible.

We trust the Federal Government will consider an adequate water supply as a part of their responsibility in future studies of flood control projects to bring controlled water to a valley such as the Wabash River basin.

I want to express sincere appreciation for the Wabash Valley Association, its directors, officers, members, and for myself, Mr. Chairman, for the opportunity to present this statement.

The CHAIRMAN. Mr. William G. Greif, executive secretary of the Foundation for Evansville's Future, Inc., Evansville, Ind.

I want to tell you we have a high regard for Evansville.

Mr. GREIF. Thank you, Senator.

The CHAIRMAN. I do not know what Senator Hartke has done for Evansville but we think Evansville has certainly done well for Indiana and the country in giving us Senator Hartke.

Mr. GREIF. We feel the same way in Evansville.

The CHAIRMAN. Any rebuttal Senator?

Senator HARTKE. I might say this: I would like to welcome Mr. Greif here. Mr. Greif is a lawyer. While I was mayor of Evansville he was associated with the administration. As far as his past history, he was awarded the Outstanding Young Man of the Year Award by the junior chamber of commerce, and worked in the field of redevelopment and did such an outstanding job that the Future Foundation of Evansville purloined him and stole him from the administration and made him a more valuable citizen by doing so.

The CHAIRMAN. That is a good way to make a man more valuable. I will look into that.

Mr. GREIF. Thank you, Senator.

Senator HARTKE. Good morning. I am happy to see you here.

Mr. THOMPSON. Senator, it is nice to see you, sir.

Senator HARTKE. I might say that Mr. Thompson is not only a citizen of Evansville but was in Evansville College with me and is a fraternity brother of mine.

The CHAIRMAN. We will not hold that against him.

All right, Mr. Greif.

STATEMENT OF WILLIAM G. GREIF, EXECUTIVE SECRETARY, THE FOUNDATION FOR EVANSVILLE'S FUTURE, INC., EVANSVILLE, IND.; ACCOMPANIED BY HARRY E. THOMPSON, BUSINESS AND INDUSTRIAL DEVELOPMENT, EVANSVILLE, IND.

Mr. GREIF. Senator Kerr, Senator Hart, and Senator Hartke, since we have a combined statement here that has been joined in by the mayor of Evansville, the chamber of commerce and our foundation and the board of realtors, I thought that it be well to have Mr. Thompson with me here at this time and not take up too much of your time with reading our brief but just to summarize it.

The CHAIRMAN. Very good.

Mr. GREIF. At this time, I would like to introduce into your record, though, in addition to our brief, the letters from the mayor, the chamber of commerce, and the board of realtors.

(The information referred to follows:)

BRIEF OF EVANSVILLE AND VANDERBURGH COUNTY, IND.

Evansville is located on the Ohio River in the southwestern part of Indiana. It is the largest industrial city on the Ohio between Louisville, Ky., and Paducah, Ky. Located as it is in the lower end of the fastest growing industrial valley in the world and in the center of the world's largest concentration of electrical energy, it becomes increasingly apparent that Evansville, Ind., must be taken into consideration when any planning for the future of our Nation is considered.

Evansville's economy is tied closely to the Ohio River and its future. The Mead Johnson Terminal, one of the river's finest river, rail, and truck terminals, is located at Evansville. The industrial growth of the city depends upon the competitive freight rates of the river. Water for industry, now in abundance here, is a great asset to the future of the community. More than 500,000 people are living in the Evansville economic area and the number easily can double in the next 20 years. (See exhibit A.) Any program affecting the Ohio River and its tributaries affects Evansville.

Navigation

Between the years 1824 and 1954 the Ohio River was canalized at a total cost of $150 million. This resulted in an industrial investment in the valley of $15 billion. Evansville has shared in that phenomenal growth. Now the Government is engaged in a much greater program of canalization, building new and larger locks in conjunction with fewer and much larger high level dams. This program should be accelerated. The Uniontown Dam must be built at an early date so that Evansville can compete in the commerce of the river on an equal basis with upstream communities, some of which already have benefited by these improvements.

Flood control

An effective program of flood control in the Evansville section of the valley must be completed at an early date. Plans are under study now for the downtown section of a levee for the city of Evansville. Of equal importance is the Pigeon Creek watershed problem. This stream—although called a creek, it is larger than many streams titled "river"—drains an area of 400 square miles. The entire runoff of this watershed flows through the city of Evansville. No plan presently is before the community to develop the Pigeon Creek watershed. This area easily could become a great asset to the Evansville area in the way of water and soil conservation, flood control, recreation, and wildlife propagation.

Water uses

Evansville, with a population of about 150,000, uses an average of 25 million gallons of water per day. It is estimated that our population will double in the next 20 years. At the present rate of use our needs will be for 50 million gallons per day. In addition, the north industrial district has been estimated to need an additional 14 million gallons of water per day. This means that Evansville must expand the present waterworks to pump at least 64 million gallons of water per day. Should the use of Ohio River water become subject to rationing, then Evansville must find an alternate source of water or cease to grow.

Rationing of water on the Ohio could become a reality, if the upstream communities grow at a rate equal to the anticipated rate of Evansville's growth.

Recreation and wildlife propagation

With the ever-increasing population of the Ohio River Valley and the advent of the shorter workweek, the need for recreational facilities becomes more and more important. The Ohio River is a great facility for this purpose, but consideration should be given also to its smaller tributaries, which might provide even better facilities.

Whose water is it?

Who should have the power to make decisions regarding water use? Can upstream users ignore the problems of those downstream?

These and many other questions are before the Senate Select Committee on National Water Resources. We urge this committee to give priority to the Evansville area in making the scientific studies necessary to answer questions such as these.

Recommendation and conclusion

We in Evansville believe that the Federal Government should implement a master plan of water conservation and use. Priorities should be established and policies formulated for the future use of water. A program of surveying the Ohio Valley should identify all of the area needing attention. Your committee should have permanent status so that all water resource problems would be coordinated. We believe that the numerous laws and agencies dealing with the problems of water resources should be brought into one act and administered by one agency. Certainly the future of the greatest resource of our Nation should no longer be developed on the basis of who has the most influential lobby. We believe that an effective water resources program is second in importance only to national defense.

The members of the select committee are to be commended for the fine work they are doing in attempting to bring order out of chaos in this area of water use and conservation.

OFFICE OF THE MAYOR,
Evansville, Ind., February 4, 1960.

Senator ROBERT S. KERR,
Chairman, Select Committee on Major Water Resources,
Federal Building, Indianapolis, Ind.

DEAR SENATOR: The city of Evansville appreciates the opportunity of appearing before your committee to present Evansville's views on the need for conservation control of water and the development of water resources. I regret that I cannot personally be with you today. I am asking Mr. William Grief, executive secretary of Evansville Future, Inc., and Mr. Harry E. Thompson, assistant vice president of the Old National Bank to present this letter in my behalf.

We in Evansville are anxious that any program involving the control and use of water give consideration to the needs of Evansville which is one of the fastest growing industrial areas in the country.

Be assured of my cooperation with the program of your committee as it involves Evansville.

Yours very truly.

FRANK F. MCDONALD, *Mayor.*

EVANSVILLE CHAMBER OF COMMERCE,
Evansville, Ind., February 4, 1960.

Senator ROBERT S. KERR,
Chairman, Select Committee on National Water Resources,
Federal Building, Indianapolis, Ind.

DEAR SENATOR KERR: The Evansville Chamber of Commerce appreciates the opportunity of appearing before your committee to present this brief on the subject of water resources.

We believe that Evansville's future growth is very closely tied to the development of the Ohio River Valley.

The Evansville Chamber of Commerce offers its cooperation to the select committee as it develops its program on national water resources.

Sincerely,

FRED C. NEWMAN, *President.*

EVANSVILLE BOARD OF REALTORS, INC.,
Evansville, Ind., February 4, 1960.

Senator ROBERT S. KERR,
Chairman, Select Committee on National Water Resources,
Federal Building, Indianapolis, Ind.

DEAR SENATOR KERR: We of the Evansville Board of Realtors are happy to be able to present a brief on the natural water resources in and around Evansville, Ind., and the control of this resource. The board of realtors, 150 members strong, have deliberated this question and desire to be heard.

Since we all could not attend, the board of directors of the Evansville Board of Realtors have authorized William Greif, executive secretary of Evansville Future, Inc., and Harry E. Thompson, assistant vice president of the Old National Bank, a realtor, to speak on our behalf.

If, in any way, the professional services of the Evansville Board of Realtors may be of use to you and your committee, please don't hesitate in calling on us.

Respectfully,

ROBERT L. J'ARRETT,
President, Evansville Board of Realtors.

Mr. GREIF. I think we can summarize our feelings in Evansville with the recommendation and conclusion we have at the close of our brief.

We in Evansville believe that the Federal Government should implement a master plan of water conservation and use. Priorities should be established and policies formulated for the future use of water. A program of surveying the Ohio Valley should identify all of the area needing attention. Your committee should have permanent status so that all water resource problems would be coordinated. We believe that the numerous laws and agencies dealing with the problems of water resources should be brought into one act and administered by one agency.

Certainly the future of the greatest resource of our Nation should no longer be developed on the basis of who was the most influential lobby. We believe that an effective water resources program is second in importance only to national defense.

To summarize our feeling we believe that the only way Evansville can come before such a committee as this and present the specific proposals is that if we first know the facts.

We believe that Congress should vote sufficient funds to make a scientific study so that a master plan can be created and we can then come forward and make specific requests for our locality.

The CHAIRMAN. Do you have anything to add to that?

Mr. THOMPSON. Senator, there is one thing I would like to mention, and that is, Evansville is a down-river community. I think this is true especially in the conservation of water, the impoundment of water at the sources. Because of the low flow of the dams and runoffs, and of course, the damming of the streams downstream by levee, we need to protect the communities down there from flood control. The down-river town is sometimes overlooked.

Now, in the event of a very fast-growing population upstream in the Ohio River Valley, it is conceivable there might be such a thing as water rationing or excessive pollution or something else, that would affect the downriver cities and consequently we urge that the committee in making their master plan give serious consideration to the question of whose water it is and look out, too, for those downriver towns, especially Evansville, Ind.

The CHAIRMAN. I think that is wonderful, Mr. Thompson, and Mr. Greif.

Let me say this to you: I personally sponsored low flow legislation for many years. I will say to you that we have met so far, substantial and effective barriers in the form of administration opposition. I am delighted to see this manifestation of public realization and public interest in this very important proposal. I hope it is something that will grow and that additional support will be enlisted and

generated throughout the country, because it is an absolute necessity in any overall plan of water use. Without it, as you say, those first having access to water will be tempted to use it in such a way as not only to serve their needs, which are very worthy and commendable and must be recognized, but also in such a way as to impair the usefulness and the availability of the water to others along the streams and in the river basin.

And certainly I hope you succeed in securing the support of not only your own Representatives in the Congress but of people everywhere who likewise will do the same in enlisting their Representatives in the Congress in the support of this worthy cause.

Mr. THOMPSON. Thank you very much.

Mr. GREIF. Thank you, sir.

The CHAIRMAN. Now, I am going to call Mrs. Ralph E. Legeman, president of the League of Women Voters of—what is the name of this town?

Senator HARTKE. A great city.

The CHAIRMAN. Oh, Evansville. All right.

Mrs. LEGEMAN. Senator, we prefer to call it the valley of opportunity now.

The CHAIRMAN. Just a minute. Would you run that by again—the what?

Mrs. LEGEMAN. We have newly adopted the phrase "The Valley of Opportunity" as descriptive of Evansville.

The CHAIRMAN. Well, I am getting more interested by the minute. Go ahead.

STATEMENT OF MRS. RALPH LEGEMAN, PRESIDENT, LEAGUE OF WOMEN VOTERS OF INDIANA, EVANSVILLE, IND.

Mrs. LEGEMAN. Distinguished Senators, like Mr. Holman, I wear several hats. I may forget—I mean I did not wear any because I wear several and I may forget that I am not representing the League of Women Voters once in a while and think of myself as a citizen of Evansville and as an active member of the Izaak Walton League, but I am officially representing the Indiana League of Women Voters, of which I was for 3 years the chairman of the water resources as the first vice president.

On behalf of the 36 Leagues of Women Voters in Indiana, I would like to express the appreciation of all of us to be able to appear before this august committee. We do not consider ourselves experts in many of these areas after 4 years of study, but we do think we have gained a wider understanding of the many problems involved in the utilization of our water resources to the national as well as the local interests.

I might add here that don't underestimate the power of women either.

In this matter since it was announced publicly that I would appear before this hearing I have had two invitations from men's organizations in southern Indiana to speak to them on water resources.

The CHAIRMAN. Have had two of what kind of invitations? [Laughter.]

Mrs. LEGEMAN. We of course have committed ourselves as a league in favor of coordinating activities of the Federal departments and

agencies in the field of water resources, and working together on the various levels of government. We think that the Senate committee here has taken a very fresh and very invigorating approach to the problems as we see them. It is a very promising thing for the future of water resources.

Currently, we have gone on record as very strongly in favor of Senator Murray's bill, S. 2549, which I need not discuss with you, I am sure. Most of the leagues in Indiana, however, have found that while we are interested in all aspects of the matter of water resources, the major problems, as we see them, in this State, have to do with flood protection and pollution abatement.

We have a few places, in fact there is a little town upstate where my husband as an architect was asked to add to the school where it was impossible to do so because there is not enough water supply. That is just above us in Lyndall, Senator Hartke. They simply cannot expand the school because they do not have enough water pressure to do so.

Many leagues, of course, in Indiana are very concerned about recreational planning also. But I will stick to our two major forensics of flood protection and pollution.

It is interesting to note that the Indiana Flood Control and Water Resources Commission which we highly respect, has reached conclusions which are like those of the League of Women Voters, and it is largely to the credit of this fine commission that most Indiana leagues have replied affirmatively to the question whether steps to remedy their most acute problems are underway.

Because pollution abatement seems to be a major problem in Indiana we wish to reaffirm our support of Public Law 660 and its amendment which I understand is now in conference committee, H.R. 3610.

The CHAIRMAN. I will say to you that that amendment is out of the conference.

Mrs. LEGEMAN. Oh, good.

The CHAIRMAN. It was agreed on some 3 days ago. You are talking about the renewal and expansion of the pollution abatement program?

Mrs. LEGEMAN. Yes.

The CHAIRMAN. And I am of the opinion it will be passed by the Congress next week or the week after.

Mrs. LEGEMAN. I am delighted to hear it because we hear from the stream pollution board that of the 21 cities that applied for help in 1952 only 6 were there funds for, and my own town, I think it was in your administration——

Senator HARTKE. That is right.

Mrs. LEGEMAN. Took advantage of this measure and there we were supposed to get $250,000 and I think there was only $234,000 left in the appropriation for Indiana; so that is what we got for our interceptor sewers and east side treatment plant improvement.

But in addition to that I did not hear the stream pollution representative say this, but I understand that there are 100—what is it—no, there are 130 communities in Indiana which are still with partial sewers pouring their sewage into drains and country ditches.

Well, the league has come to the position that the role of the Federal Government in financing water resource development is really

a very important one because most of these various developments or programs involve such large capital investment.

Although in spite of the fact that we talk in Indiana a lot about it we don't want the Federal Government telling us what to do and we are not going to take a handout and so on. We just don't have the funds for doing some of these things, and we are glad that we are able to work through our State agencies, such as the stream pollution board and the flood commission, to get Federal aid well administered.

Also, the fact that so many interstate problems are involved is another reason. But we still believe that the State and local governments and private users which benefit from water resource development should share the cost in relation to the benefits received and abilities to pay for them.

Sometimes this gets us into a very serious situation in our local communities and later on I will probably say something that will be harassing and maybe I ought not return home tonight after I say it.

We believe that one way of insuring that programs are undertaken on the basis of real need is to have the beneficiaries share in the cost.

We believe that this incentive program under Public Law 660 and now amended is one of the finest ways that the Federal Government has used policy to get locals to be very serious about taking on to themselves new water resource programs.

Many of our local leagues, of course, have encountered in their running around in Government, which is the thing that we encourage citizens to do, that the Small Watershed Act is working in Indiana but is rather slow and should be encouraged.

I myself have attended a number of meetings of the possible beginnings of a conservation district in Pigeon Creek which runs through the city of Evansville, and there is Little Pigeon Creek that empties into the Ohio River up above us at the Alcoa plant which is another great need.

One of my good friends from New England said, "Why is the water in southern Indiana so dirty all the time?" It is not so much it is dirty that it is full of sediment. I think the greatest accretion of top soil in the world I was told by the local department of agriculture is at Fort Branch, Ind., 12 inches. Everytime I see Pigeon Creek I say, "Oh, my, more top soil from Indiana going down the Mississippi Delta."

We also feel in the Indiana league, that more public hearings in the early stages of projects should be held so that citizens can listen to alternate proposals and consider competing demands and permit expressions of opinion.

Finally, the league thinks very strongly that an entire river basin or regional unit should be taken into account, and I point out here that the Marion, Ind., league tells us that the Mississippi Dam in the Wabash Valley poses definite problems for the area as it may block the runoff of flood waters that may in turn affect the city and county sanitation in Grant County. The Corps of Engineers who have been sought on this matter have promised additional study of the Mississinewa before proceeding further with this dam program.

Senator HARTKE. I might say on that, Mrs. Legeman, that I discussed that with the mayor and the chamber of commerce this week when they were on the CAB hearings in regard to Grant County. We have the assurance from the Army Engineers that they will give that their complete support.

Mrs. LEGEMAN. I am very happy to hear that because the league in Marion has really taken a very serious interest in this.

However, if I may make one observation, as a member of the Evansville league we have a feeling that the current program of flood protection is at times a little contrary to the national interest. In Evansville we have been allotted over a period of years money to continue the building of our levee, our seawall, and we have just I think reached an agreement about that section which fronts on our river front at the end of Main Street, for which we are all grateful.

But since the partial completion of the levee, since our big flood in 1937, 1,500 homes and some industries have been constructed and are used and some schools, too, in the flood plains area; and we feel if the Federal Government is to bear the major part of the cost of flood protection—and we estimate that the seawall at Evansville will take $13 million of Federal funds—we would suggest that penalties be written in the law against indiscriminate use of the flood plains.

We think a sort of cyclical movement goes on because once you have developed the flood plains you need more protection than you did when you first got the flood protection, which was the reason why you developed them in the first place, you see.

We believe that we should have flood plain zoning so that we can be eligible for national flood insurance or some kind of warning to locals about this use of the flood plains.

We also find that there is a kind of discrepancy sometimes between the use of Federal moneys, matching funds for pollution control, but matching funds, say, in a sense for soil and water preservation under Public Law 566, but full grants for other areas of water resource development, and we feel that this seems to have an effect on citizen reaction.

We find sometimes that the beneficiaries, full beneficiaries, are not perhaps as deliberate about alternate uses of Federal funds for water resources as those who are going to be actually paying part of the cost.

We also find that sometimes they do not consider the use of Federal funds for water resources in contrast to use of Federal funds for other purposes.

We think that if we are to serve the national interest, then the national money should be matched by locals, something in relation to their ability to bear the cost, because we think that it will make for better citizen interest and more deliberation in these programs.

I might also say that in Indiana we are delighted to be a member of the Ohio River Valley sanitation compact which has made great strides, and the Great Lakes Commission of the newly created Wabash Valley compact.

I might say that in Evansville we are still a little worried about a reprint which was made in, I think the Congressional Digest of the 11th of this month—January rather—an article from Good Housekeeping in which Mr. Robert McKellum, of the department of public

health, water supply division, says that there is 1 million pounds of effluent from manufacturing firms along the Ohio River now drifting down the Ohio River and we know nothing about its effect on human beings.

So we are a little amused by the fact that our local clean water supply organization is worrying about a little flourine but seems to be completely unaware of the fact that we are having a million pounds a day of effluents from these manufacturing plants.

Again I wish to thank you for the League of Women Voters of Indiana, and for the League of Women Voters of Evansville, and myself for your courtesy.

The CHAIRMAN. We want to thank you, and I want to say this to you: that the members of this committee individually and collectively are not unaware of the power of women and as chairman of this committee I am happy to report to you that at every hearing we have held one of the most intelligent, interesting and helpful witnesses has been from the League of Women Voters in the area where the hearing was held.

Mrs. LEGEMAN. We are duly grateful to you.

The CHAIRMAN. I hope very much that the example they are giving would be followed by people generally in the matter of studying their river basins, their water problems, this program of conservation and implementing the plans that come to them as they study.

Mrs. LEGEMAN. Thank you, Senator Kerr.

The CHAIRMAN. Thank you very much.

Senator HARTKE. I say this on behalf of Mrs. Legeman that she not only takes of her own time for this and I think almost devotes every waiting moment to civic affairs, and as far as I know I think probably at her own expense in most cases, and I know without any reimbursement whatsoever.

The CHAIRMAN. I want to say that that is a matter into which we will make no inquiry.

Mrs. LEGEMAN. Thank you.

(Mrs. Legeman's prepared statement along with other league statements follow:)

STATEMENT BY MRS. RALPH LEGEMAN, EVANSVILLE, IND., REPRESENTING THE LEAGUE OF WOMEN VOTERS OF INDIANA

Mr. Chairman, on behalf of the members of the 36 Leagues of Women Voters in Indiana, I should like to express our appreciation for this opportunity to be heard by your committee. During the past 4 years, the members of the league in Indiana have studied the governmental aspect of problems of water resources development in the United States as a whole, as well as in their own localities. While we do not pretend to have become experts within this time, we think we have gained a wider understanding of the many problems involved in the utilization to the best advantage of the water resources of our country, and we have reached certain general conclusions.

The need for coordinating activities of the Federal Departments and agencies concerned with water, the congressional committees with responsibilities in the field of water resources, and State and local governments is apparent. The fresh approach to the solution being taken by the Senate select committee of determining, through public hearings, regional water needs, present and future, seems promising.

As a part of our study, the provisions of the proposed Resources and Conservation Act of 1960 have received attention. As you know, this bill, S. 2549, has the strong support of the League of Women Voters of the United States, and we in Indiana wish to affirm our concurrence in support of this measure. It is our

conclusion that such legislation would result in a better long-range planning and improved coordination in water resources development programs; would promote the continuing gathering of essential basic data; and would provide sound background for consideration of water proposals by the Executive and by Congress through a joint committee.

Most Indiana league members indicate, on the basis of investigations in their home territories, that their major local problems are flood control and pollution abatement. Water supply does not seem to be a matter of major concern in the State generally at present, but with continued population growth and increased industrial demands it could soon become so. Several leagues have pointed out the importance of including recreational needs in planning water projects in Indiana.

The work of the Indiana Flood Control and Water Resources Commission has been followed with interest by the league, and its reports have been helpful in our study. It is interesting to note that in many respects the recommendations made by this group coincide with positions reached independently by the League of Women Voters. It is largely to the credit of the commission that most Indiana leagues have replied affirmatively to the question of whether steps to remedy their most acute problems are underway.

Because pollution seems to be a major water problem in Indiana, we wish to call your special attention to league support of the Blatnik amendment to the Water Pollution Control Act. You are aware, we are sure, that leagues all over the country in their study of water resources have been interested in this bill. Official league support of H.R. 3610 has been announced recently as a result of study by these 1,080 leagues all over the country.

The league believes that the role of the Federal Government in the financing of water resource development is an important one, because of the magnitude of many of the programs, the large capital investment required, and the fact that interstate problems are often involved. However, the league believes that the State and local governments and private users which benefit from water resource development should share the cost in relation to benefits received and ability to pay. The league believes this is one way of insuring that programs are undertaken on the basis of real need and are carried out efficiently.

The league believes that the use of incentive payments by the Federal Government to stimulate local expenditures for essential water programs is an effective kind of cost sharing. The present pollution control program as in operation since 1956, and the proposed Blatnik amendment, are illustrations of this type of cost sharing.

The annual report of the Indiana Stream Pollution Control Board, dated June 30, 1959, states that in fiscal 1958–59 applications for this aid were made by 21 Indiana municipalities for Federal funds in the amount of $2,868,789 to help pay for $16,500,000 of sewage plant construction. The available Federal funds were sufficient to award priorities for grants to only 6 of the 21 communities, and $1,039,850 of Federal funds were paid to them. Of the 15 municipalities denied this help, only 3 went ahead to construct sewage plants on their own. The report further states that there are in Indiana 130 communities with at least a partial sewer system which have no sewage treatment facilities, and that the sewage thus dumped into ditches and open country drains constitutes a health hazard.

Many of our league members in Indiana have been favorably impressed with the program being carried out under the Small Watershed Act and would like to see it expanded. The need for closer coordination of small watershed projects under the direction of the Department of Agriculture and flood control plans developed by the Army Corps of Engineers has been noted.

It seems to us also that holding public hearings in the early stages of project planning, for the purpose of explaining alternate proposals, considering competing demands, and permitting an expression of opinion, would be useful.

Finally, since the league has agreed that planning should include an entire river basin or regional unit, we believe interstate agreements should be encouraged. An example of the importance of considering the total basin in developing flood control measures is pointed out by our members in Marion, Ind. The proposed Mississinewa Dam in the Wabash Valley poses definite problems for the area, as it may block the runoff of flood waters that would, in turn, affect city and county sanitation in Grant County. The Corps of Engineers has promised additional study of the upper Mississinewa before proceeding further.

Indiana at present is involved in three interstate agreements: The Ohio River Valley Water Sanitation Compact, which reports great strides in the control of pollution in the Ohio River Basin; the Great Lakes Commission; and the newly created Wabash Valley Compact. We cite the Wabash Valley Compact as a particularly good example of a multipurpose approach to regional planning. The success of the Ohio River Valley Water Sanitation Compact suggests that its expansion to other areas of water resources development would be highly beneficial.

I should like again to thank the committee on behalf of the League of Women Voters for this opportunity to appear before you and to assure you that those of our members, from surrounding States as well as Indiana, who are privileged to attend this hearing are finding it a most interesting and profitable experience.

LEAGUE OF WOMEN VOTERS OF ILLINOIS

THE WABASH RIVER VALLEY

The Wabash drains about two-thirds of Indiana and one-sixth of Illinois. The total watershed area is over 33,000 square miles, of which 7,200 are in Illinois. The main stream is 475 miles long, rising in western Ohio, flowing northwesterly to Huntington, Ind., then west to Logansport, southwest to Covington, south to the Indiana-Illinois State line about 15 miles southwest of Terre Haute, and then in a general southerly direction forming the Indiana-Illinois State line to its confluence with the Ohio River about 8 miles north of Shawneetown, Ill. There are a total of 88 counties in the watershed, 61 in Indiana and 27 in Illinois.

The principal tributaries to the Wabash River from the west, progressing downstream, are Little Wabash River of Indiana, Eel River, Teppecanoi River, Vermilion River, Embarrass River, and Little Wabash River, of Illinois; the principal tributaries from the east are Salamonie River, Mississinewa River, Wildcat Creek, Sugar Creek, Raccoon Creek, White River, and Patoka River. Of these tributaries, the White River is by far the largest, draining about 11,300 square miles, principally consisting of the West Fork, draining 5,430 square miles, and the East Fork, draining 5,680 square miles.

The terrain of the Wabash Valley is generally flat or gently sloping, with broad, flat valleys. The whole basin is covered by glacial drift deposits of varying depth. The soil of much of the valley is considered to be among the richest in the world. The three general soil types found are bottomland soils which are generally fertile, bottom sandy loams and sands on which productiveness varies greatly, and upland soils which are not naturally as productive as that of the bottoms but is potentially good if properly cultivated.

The climate as well as the richness of the soil varies considerably within the valley. This permits a variety of crops from corn in the more fertile north to a considerable timber potential on the eroded and hilly terrain of the south.

Among the important natural resources to be found are soft coal in the southern and western parts of the valley, as well as oil and gas. Sand and gravel are found in the northeastern part of the valley and along the rivers in the south; limestone in a number of central positions. There are also useful deposits of clay and pyrite.

The Wabash Valley lies within a ring of thriving industrial and commercial centers, including Chicago, Pittsburgh, Detroit, St. Louis, Cincinnati, and Cleveland. These large cities have a network of intercommunication systems which cross the valley. These networks have been developed because of the needs of these growing population centers. By contrast, the population of the valley has remained stationery. Today it is estimated at 2.5 million, the same figure given by the Department of Engineering Extension of Purdue University over 15 years ago in their report on the Wabash Valley.

Transportation by water has reached immense proportions on the Mississippi, Ohio, and Illinois Rivers, but there has been so similar development on the Wabash. The Wabash flows into the Ohio, which carries a greater volume of traffic than any other part of the Mississippi system.

Considering its favorable location, it is surprising to learn that the Wabash Valley is considered to be a depressed area. From the 1950 census figures the valley's average median family income was $2,618 annually, as compared with the national average median income of $4,016.

Farming, including stock raising, is the most important occupation of the valley. In fact, the combination of fertility of soil, level topography, and favorable climate gives this region a high agricultural potential. The valley does have industrial development. In addition to Indianapolis, there are a number of small manufacturing cities along the rivers.

The chief and most dramatic problem in the area is flooding. Many cities and towns are subject to repeated flooding; loss of life and property is an annual occurrence. Flood damage exceeds $5 million annually, and the February 1950 flood caused damages costing $50 million.

Floods in the valley have caused at various times in various places: inundation and contamination of the source of water supply, damage to sewerage systems, general building and street pavement failures, inundation of powerplants or destruction of powerlines, and inundation of homes. All have an adverse effect upon the health, welfare, and morale of the people. An aftermath of the floods is the mosquito-breeding areas created by receding waters and the consequent spread of malaria (1,500 cases were estimated in Terre Haute in 1937).

The problems of flooding affect the whole valley. Flood protection to date has been practically exclusively through leveeing. Landowners banded together and formed levee districts to which they paid taxes for the purpose of erecting levees. The first levees were put up as early as 1808. However, all existing levees were wiped out in the flood of 1913. All levees existing today have been built since 1913. The custom of setting up local levee districts meant that there was no overall plan for flood protection. Over 70 independent levees with a total length of over 350 miles are known to have been built. This haphazard leveeing has actually aggravated floods along the river. In 1939 the Army Corps of Engineers was requested to make a study to see whether reservoirs would be economically feasible as a solution to the flood problem. The study was published in 1944 and turned down reservoirs in favor of a comprehensive levee plan. A 1957 corps report indicated that a number of plans have been authorized for improvement of old levees and construction of new ones. Federal projects now underway are: a flood control reservoir (the Mansfield Reservoir) at Ferndale, Ind., costing the Federal Government $7,540,000; riverbank stabilization at New Harmony Bridge between the States of Indiana and Illinois; and a new system of levees at Vincennes, Ind.

A further problem in the area is erosion. When the Wabash Valley was first settled in the 19th century it was rich in possibilities; there were hardwood forests in southern Indiana as well as at the headwaters of the river and its tributaries. The lower Wabash Valley was considered a hunter's paradise. Ground has been cleared recklessly and cultivated without regard to conservation practices. Many of the hilltops and steep slopes of southern Indiana are now absolutely bare. Rain washes down the sterile subsoil which in time will cover up much of the fertile soil of the lowlands. In Champaign County, Ill., even though one-fifth or over of the farmers belong to the Soil Conservation District and employ conservation methods, and perhaps another one-fifth employ some conservation practices, more than half are still not using any kind of conservation.

The heavy load of silt from the farmland is of course polluting the river and its tributaries. But this is not the only kind of pollution to be found. There are both industrial and untreated domestic wastes emptying into the river system. Many small towns do not have sewage disposal plants and have voted down bond issues for building them.

Another problem is a lack of recreational facilities in the valley. There are 15 State parks, 11 State forests, 2 national forests, and 6 State operated memorials, but still for the majority of basin residents there is no good place to go for a picnic or a swim within reasonable driving distance of home.

A group recently formed to find a solution to some of the problems of the Wabash River Basin is the Wabash Valley Association. It was formed in 1957 by a group of local valley citizens whose original purpose was to canalize the Wabash River.

The history behind this development starts back in 1832 when a canal was constructed connecting the headwaters of the Wabash with those of the Maumee, which flows into Lake Erie. During 1932–53 the canal contributed increasingly to the prosperity of the Maumee Valley and upper Wabash Valley. In 1853 the canal was completed to the Ohio River, but certain defects in the canal as a means of transportation were turning the tide of opinion against it. The season of navigation was limited to less than 8 months; storms and floods interfered still further. Enterprises stimulated by the canal now demanded better facil-

ities. The Wabash Railroad was built by eastern capitalists paralleling the canal, and this competition dealt the deathblow to the canal.

During the depression in the early 1930s, the Wabash River was studied by the Corps of Engineers for the purposes of navigation. Their report stated at that time that a development for navigation on the Wabash was not justified. However, the Ohio River now carries four times the tonnage carried on the Mississippi River (a great part of which is coal being shipped to Pennsylvania's steel mills), and with the Wabash lying between the Ohio River and Lake Erie many people still have the dream of a canal to the lake by way of the Wabash.

The Wabash Valley Association's first act was to successfully encourage the 1957 legislatures of both Illinois and Indiana to unanimously approve resolutions which indicated their support of needed interstate regional objectives for the Wabash Valley.

The association was primarily interested in canalizing the Wabash from its mouth to Terre Haute in order to ship their oil, coal, and stone more cheaply. They joined the legislatures of Indiana and Illinois in inducing the Army Corps of Engineers to start a survey for this purpose. Upon request to the All-University Committee on Community Problems, the University of Illinois offered to make a committee available to the association to analyze the many problems of the Wabash and guide them in an approach to a more comprehensive basin program. The committee was composed of representatives of the departments of geography, city planning and landscape architecture. A meeting was arranged with the Wabash Valley Association to which representatives from the Universities of Purdue and Indiana were also invited. A research planning committee from the three universities was established, and at the same time, the valley group set up a committee to incorporate themselves officially in the State of Indiana.

As a result of the research done by the Tri-University Committee, a plan for comprehensive research was made available last year to the Wabash Valley Association to guide them in future development of the basin. The association as a result, induced the Army Corps of Engineers to broaden their Wabash survey to include flood control, recreation, and pollution aspects. This survey is being currently undertaken.

The Tri-University Research Committee report also pointed out to the association that an interstate compact would be necessary to correlate the planning of the two States. Through financial support by the Wabash Valley Association an interstate compact was developed by a joint committee appointed by Governor Stratton of Illinois and Governor Handley of Indiana. Working with the Council of State Governments this committee which included representatives of the Tri-University Research Committee and the Wabash Valley Association made recommendations which were drafted by two consultants. Within this unique compact, provision is made for enabling legislation to create an agency to be known as the Wabash Valley Interstate Commission. It will be provided with funds, have powers to explore and plan, but no regulatory powers. It will work through existing agencies of the two States, and will plan in the areas of flood control, water pollution prevention, agricultural resources, commerce, navigation, conservation, recreation, and water resource development. The compact was passed in the Indiana and Illinois legislatures during their 1959 sessions and then ratified by the U.S. Congress.

This report was prepared by the Champaign County League of Women Voters, Mrs. B. G. Ricketts and Mrs. Marvin Metzger, cochairman of the Water Resources Committee.

League of Women Voters of Pennsylvania

The league of women voters has expressed its views on water resources before this committee in several parts of the country. The league's stand in favor of integrated river basin development and of more effective coordination of water resources administration at the Federal level is therefore well known to you.

We of the Pittsburgh and Mount Lebanon Leagues would like to reiterate these views and also point out some of the things we have learned about our own area needs during the past 4 years of study.

Many citizen groups today are emphasizing the need of planning. We agree that planning is necessary, but an equal need is for a regional agency within a river basin equipped with authority to carry out the plans we already have.

In 1911, for example, the Flood Commission of Pittsburgh made detailed plans and cost estimates for 43 flood control projects in the upper Ohio River Basin, which it later reducted to an essential 17. Among these was the Kinzua Dam project just now being undertaken at an estimated cost many times greater than if it had been built when originally planned. In the meantime our valley has been ravaged by costly floods which would have been reduced or prevented altogether, if the whole plan had been carried out.

To control pollution on the Ohio River, the Ohio River Valley Water Sanitation Commission was set up by interstate compact in 1948. In the past 11 years it has made great progress in cleaning up the river, using persuasion and cooperation as its chief weapons. But to keep pace with the rapid increase of population and industrialization in the valley, it needs more funds and more authority.

Another urgent need we have found is for more research. Acid mine drainage remains a big problem in western Pennsylvania, West Virginia, Kentucky, and other coal-mining States. More study is needed on how to combat it, together with federally promulgated standards of water quality, with incentives for State compliance, and more stringent regulations for mine operation.

An emerging problem in urban Allegheny County is the effect on natural water drainage of the acres of roofs, miles of pavement, and the regrading of land for urban development. How these factors affect the replenishment of ground water by natural seepage should be studied. If ways to reduce this loss can be developed, all the urbanizing areas of the country would benefit.

As per capita income and leisure hours increased, and as our streams become more attractive through better conservation, more pressure is put upon them and the need for regional planning of recreation facilities become evident. For example, fishing and boating interests are often in conflict. Insofar as interstate streams are involved, uniform regulations for all the States of the upper Ohio are needed.

In concluding our statement we quote from the Pittsburgh Flood Commission's report of 1921 and ask whether the time has not come to take specific steps toward the goal stated 39 years ago: "The water and flood problems of the Ohio River Valley should be studied and solved as a whole. They cannot properly be separated into individual questions of power, waterways, floods, water conservation and utilization, forest perpetuation, watershed protection, and so on * * *. A national policy for the complete treatment of navigable rivers from source to mouth is advocated by the Flood Commission,"—and echoed by the Leagues of Women Voters of Pittsburgh and Mount Lebanon.

[From the Pittsburgh Post-Gazette, Jan. 30, 1960]

AREA WATER RESOURCES SHOULD BE SURVEYED

With three mighty rivers flowing through their valleys, most residents of this area might be shocked at the notion that they face a future water problem. But the alarm has been raised on several occasions in recent years; it would be folly to ignore it.

The latest warning was sounded this week when Edward J. Magee, executive director of the Allegheny Conference, spoke at the annual meeting of the Regional Planning Association.

"Today," he said, "there is increasing concern in some quarters, and very rightly so, with regard to this region's existing water supply when related to future domestic and industrial demands. With this in mind, we are going to take immediate steps to develop a water resources program, adequate to insure a sufficient quantity of quality water for this area in the years to come."

There is no urgent water problem in this area now. To the extent that it exists at all, it involves quality more than quantity. Because of the enormous amount of mine and industrial waste flowing into some of the area's streams, there is a problem of purification during summer periods of low flow. That should be helped by the impounding of water behind the Kinzua Dam now getting into construction.

What of western Pennsylvania's long-range needs for good quality water? In 1958, the Population Reference Bureau, Inc., released a report mapping areas which face anticipated water problems by 1970. The Allegheny region is among them.

Even if a sufficient quantity of water were foreseeable for western Pennsylvania, would it be of a quality suited to good living and future economic

development? That question has troubled local citizens in the past. Many years ago, the late Mayor Scully wanted to build an aqueduct to bring good quality water to the Pittsburgh area from sources north of here.

More recently, it has been proposed to build the Ware Aqueduct to bring a better quality of water to this area from a large reservoir on Indian Creek some 50 miles southeast of Pittsburgh. The State legislature has empowered the Westmoreland Supply Authority to construct that project. But it probably won't get anywhere without the participation of Pittsburgh, which would be its largest consumer.

The missing element in various proposals for improving this area's water supply is an overall plan based on a professional survey and study.

In that respect, western Pennsylvania is behind the eastern area of the State. At the urging of the Governors of four States and of other public officials interested in the problem, Congress requested the U.S. Army Corps of Engineers to make an extensive 3-year study of the Delaware River Basin providing water for much of eastern Pennsylvania and parts of three other States. That study, made with the aid of Federal and State agencies concerned with water, will be completed this spring.

Perhaps public officials and civic planners should seek a similar survey of the Allegheny and Monongahela River Basins. Failing that, some other approach should be made to a proper study of this area's anticipated water needs. Now is the time to avoid future trouble by developing an adequate water resources program.

League of Women Voters of Ohio

During the past 5 years the 60-odd Ohio leagues have devoted time and efforts to the study of the Nation's water resources policies and problems. They concentrated on the puzzling picture of the Federal administration, but studied also their own local and State practices and needs.

REGIONAL APPROACH

Ohio leagues welcome the field hearings of the Senate Select Committee as an opportunity for gathering information and stimulating understanding on a regional basis. Ohio leagues recognize that the most fruitful approach to solve the Nation's water problems in regional or river basin planning and development, a concept of administration in which Federal, State and local agencies could work cooperatively.

Approximately half of Ohio's local leagues are situated in communities within the Ohio River Basin and its watersheds. They are familiar with watershed management as developed in Ohio's conservancy districts. Their laws and procedures offer an example for watershed management, particularly in districts organized for multiple purposes, such as the Muskingum Conservancy District, which includes recreation facilities and wildlife conservation within its goals. The management of conservancy districts can also serve as an example for regional development carried out by local support in conjunction with Federal and/or State agencies.

Ohio leagues are familiar with the progress achieved by the Ohio River Sanitation Commission. The annual reports give a good picture of its accomplishments and the goals still to be reached. ORSANCO is considered to be effective, particularly because this compact has set definite and practical standards and has the power of enforcement by law; because Federal agencies are represented, and States, once members, may not withdraw over grievances or conflicts. However, leagues are aware that ORSANCO is a single-purpose compact, set up for pollution abatement and control. Therefore, development of water resources in the Ohio Basin, as well as any other aspects such as flood control, navigation, distribution and conservation have to be handled by a multitude of agencies—Federal, State or local—without a uniform pattern of procedure or a uniform set of rules for the sharing of costs.

COORDINATED ADMINISTRATION

Ohio leagues are in agreement that we are in need of more consistent water resources policies and administrative machinery which would facilitate the work among departments and committees, and thus diminish existing conflicts and waste.

Ohio leagues, therefore, have expressed their support of the proposed Murray bill (S. 2549), the Resources and Conservation Act of 1960; its provisions, such as a Council in the White House, an annual report by the President, and a Joint Senate Committee, lay the foundation for a constructive program. Our leagues have studied the many recommendations submitted to the Government in recent years, and they are pressing for decisions and results.

MAIN PROBLEMS IN OHIO

Two-thirds of Ohio's land area drains into the Ohio River which, for over 400 miles, flows along the eastern and southern boundaries of the State. This river together with its perennial tributaries, underground water beds, and an average yearly precipitation of approximately 38 inches provide the area with its water. However, surface and underground water is not always available where and when it is needed. Just as Ohio's rainfall varies per season and cycles, its rivers and streams have a wide range in flow within the year and with cycles of drought and floods. Detailed data about Ohio's water resources and projected needs will be available as soon as Ohio's inventory plan is completed.

At present reports point to the following major problems:

A rapidly increasing gap between demand for and distribution of domestic and industrial water supplies.

Further flood and pollution control, particularly along the tributaries of the Ohio River.

Legal and financial means for controlling the rising menace of flood plains in metropolitan areas.

Acquisition of sites for public reservoirs and recreation facilities.

FINANCES

Various projects to alleviate above-mentioned conditions are under discussion or on paper and proposed by the numerous agencies or organizations. How to finance them, is the main obstacle.

In many instances rapidly growing communities, particularly smaller ones, are confronted with inadequate water and/or sewage systems; to correct the situation is beyond their financial means. Equitable means for financing local, as well as regional improvements and developments must be found.

Ohio leagues are in agreement that, wherever possible, local levels of Government, private users, or beneficiaries should share with State and Federal Governments the costs of necessary improvements. Leagues feel that Federal help should be "incentive" rather than unilateral. However, Federal incentive help such as offered in the Federal Pollution Control Act and its proposed amendment is often the decisive factor for making progress possible. Grants for pollution abatement should, therefore, be expanded.

A similar need for Federal incentive assistance exists in the field of water supply facilities; demand for reservoirs and pipelines is increasing.

EDUCATION

The Ohio leagues have made considerable efforts to interest not only their membership but also their communities in this subject item, and to spread information and understanding. Interest and appreciation are rising, but the going is still rough. Confronted with the maze of incongruous practices and conflicting demands people are apt to be easily discouraged and remain apathetic.

Yet, enlightened understanding is necessary for public leadership and public support; it is necessary, because in many instances alternative choices of projceted improvements are desirable, and decisions must be made in the light of the most beneficial results. Continued and sustained efforts must be made to bring the principles and practices of sound water management before the people.

LEAGUE OF WOMEN VOTERS OF LOUISVILLE, KY.

The water resources committee of the Louisville League of Women Voters thanks you for this opportunity to present a brief written statement, inasmuch as we are unable to attend in person.

The major concern of our water resources committee is toward the promotion of greater coordination, both governmental and private, at all levels of our

water resources program. Therefore, we feel that in analyzing our needs from a local as well as a national level, we wish to add emphasis to the League of Women Voter's support of the proposed Resources and Conservation Act of 1960. This would establish a national policy for the conservation and use of our natural resources. It would also establish a Council of Advisers in the White House and a joint committee in the Congress to give continued, informed attention to the needs and capabilities of the Nation in the field of natural resources.

We wish continuance of the local pollution control program made possible by the matching funds Federal aid program. We ask support of the Blatnik bill (H.R. 3610) to provide continuance and expansion of the incentive program for local sewage plant construction. Funds provided by this program are being used at present for such treatment plants in the Louisville area.

We believe this to be a realistic and effective approach to the problem of pollution.

The CHAIRMAN. Now, Mr. Frost of the Ohio Water Commission is here. We are glad he arrived. He was delayed because of atmospheric conditions in flight. We are glad to have you here, Mr. Frost.

You say you are here to listen, and that your State has already been represented at the Detroit hearing. That is fine. If after listening you have any observations we will be glad to have the benefit of them and we will put them in the record.

Senator HARTKE. Mr. Reporter, I would like to put these statements in the record.

First I would like to put a statement in the record by William Laybourne, executive director, Ohio Forestry Association, Inc., Columbus, Ohio, and for the committee's files pamphlets entitled "Valleys of Opportunity," and "How to Develop Watersheds."

I would like to put in the record also a statement from the Michiana Watershed, Inc., as submitted by Mr. J. S. Rose, the president of Michiana Watershed, Inc., from South Bend, Ind.; a statement from the Pope-Hardin Soil Conservation District, by Paul L. Trovillion, member, board of directors. He is not here, is he?

That is to be made a part of the record.

And together with that for the files is a copy of the map and report.

(The information referred to follows:)

STATEMENT BY WILLIAM LAYBOURNE, EXECUTIVE DIRECTOR, OHIO FORESTRY ASSOCIATION, INC., COLUMBUS, OHIO

Mr. Chairman, and members of the committee, I am William Laybourne, executive director, Ohio Forestry Association, Inc., of Columbus, Ohio.

I come before this committee today to tell you briefly of the work of this association in its educational program in the field of resource conservation and development with the hope that some of our thinking may tend to contribute to the national water policies.

The Ohio Forestry Association is a nonprofit citizens' organization, now in its 58th year, created to promote the wise use and coordinated development of Ohio's natural resources. We believe that within the valleys of our natural drainage basins, there is an opportunity to unlease a latent energy as a means of developing abundant water and other resource supplies for growing communities and new industries. We believe the energy for these new programs will come from the people. By unity of purpose, there can be joined in new understanding the efforts of the man in town with the man on the land, those of the industrialist with farmer, the merchant with conservationist, the banker with engineer, and the mayor with forester, all to provide a new leadership toward a better way of life in the watersheds of this land.

Our association strives to achieve its objectives through educational programs that are designed to create public interest and understanding of resource development needs. We feel that strong public support for sound conservation programs can be generated through thoughtful consideration by concerned citizens.

After 57 years of existence, our association is more convinced than ever that public and private conservation agencies must assume more active and aggressive leadership in acquainting the people of our State and Nation with natural resource development needs and the close relationship between these and the economic, social, and cultural welfare of every citizen of our country.

Our association consists of many special interest groups. We have a large group of woodland owners and tree farmers, commercial growers of Christmas trees, educators, and resource people devoted to this work, the forest industry as a specialized group, a very significant group of primary manufacturers who are deeply concerned with the potential of water supply, and a large group of interested businesses, industries, organizations, and groups of people who are sincerely interested and devoted to good stewardship of our resources.

Our association recognizes water as one of the most important, if not the most important, of our natural resources. We recognize that the greatest economic problem to our State and Nation is water: its availability, at the right place at the right time, in sufficient quantities and of good quality to meet our economic needs. We are the first to recognize that the job of reconciling use, protection, and development of this resource presents a complexity of thorny problems.

Our experience within recent years, working with many interested groups including business, industry, agriculture, government, press, and other recreation and conservation interests has amply demonstrated our limitations in providing for multiple-purpose development of water resources. We have watched competing factions bid against each other for favorable sites without regard to comprehensive plans that would allow maximum development. We have experienced periods of drought and flood with an increase in the frequency of each.

As a result of the 1953 drought in Ohio, our association, with the help and cooperation of a great number of people, organizations, and agencies, focused considerable public attention to the problems and opportunities in the field of watershed development by the compilation of a vast amount of factual data adapted to the major watershed areas of our State, and published under the title of "Valleys of Opportunity." We also published a companion piece entitled "How To Develop Watersheds." These two booklets have found their way into every government agency in this country dealing with the subject of water and watershed development.

What have been the results to date in Ohio?

The plan developed 5 major recommendations and some additional 20 more minor recommendations. Since the development of the plan, practically all the legislation in Ohio affecting water resources can be keyed to the recommendations in the plan.

(1) A water use inventory by the State is moving along very nicely.

(2) The Ohio conservancy district law has long been a model studied by conservationists the world over, has been revised slightly to encourage the establishment and broadened use of conservancy districts as a means of developing integrated water supply, flood control, and drainage systems along with proper land conservation methods within each watershed;

(3) A study has been completed of public agencies engaged in conservation activities in Ohio, particularly in the field of water and a new Ohio Water Commission came into being November 1959, replacing other boards and commissions deemed obsolete;

(4) A continuing study is in progress pertaining to the general subject of water rights. This is to provide for the eventual enactment of appropriate legislation to assure the availability of adequate supplies of surface and underground waters, for the equitable distribution thereof, and to clarify certain problems of land drainage. Some legislation in this area has already been passed.

(5) The plan called specifically for the creation within each watershed of citizens' watershed associations. Such associations should provide the spearhead for educational programs and unified planning in future development projects. These associations would lead eventually to the establishment of political subdivisions which could engage in action programs. We feel that bringing about an intelligent public attitude and effective action on the development and use of water resources can best be accomplished when in the hands of the local people. To this end our association is pledged to assist in the development of these citizens' groups.

We recognize very well the problems involved as to the degree of benefits derived from various types of local projects as compared with the cost of such

projects. We know that the State has and should have a keen interest and a real sense of responsibility in such localized projects and so should the Federal Government. It is our feeling however that control for such projects should remain with the people and as near to the local level as possible.

Our association today is working hand in glove with the Ohio Water Commission and all other agencies and organizations; a partnership with people, if you please. Business, industry, agriculture, civic government, and specialized recreation and conservation interests generally recognized that the greatest results are always shown as a result of team effort.

If all of the people of Ohio realized how tremendously important and necessary it is to develop this kind of teamwork, our problems would be considerably minimized. Unfortunately, the blame for such lack of public understanding must be borne by the various agencies and private organizations such as ours for this serious backlog of urgently needed conservation work. We have failed to give these problems meaning and to keep alive in the minds of people and our public conservation agency personnel their responsibilities and opportunities as good stewards.

We believe this educational phase of the work is where our association can and should contribute its greatest and most effective efforts. Through our educational programs, camps, preparation of materials for schools and teachers for classroom teaching, promotion of the use of outdoor laboratories for classroom teaching, sponsorship of all sorts of conservation activities and projects such as forestry expositions, log grades, marketing information, safety programs, watershed congresses, etc., we will continue to help develop a more favorable public opinion and as a result more and better conservation practices will be employed for the wise use and coordinated development of our natural resources. To this end we pledge our resources of funds and talent.

Thank you very much for the privilege of being here.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., February 1, 1960.

Hon. VANCE HARTKE,
Senate Office Building,
Washington, D.C.

DEAR SENATOR: Thank you so much for your usual fine assistance in arranging for Mr. Robert J. Fischgrund, of Michiana Watershed, Inc., to testify before the Select Senate Committee on National Water Resources next Friday in Indianapolis.

I have notified Mr. Fischgrund of your help in making his appearance possible, and I'm sure he will be most grateful.

In the event Mr. Fischgrund for some reason is not present nor represented at the hearing, I am enclosing his statement which he would like to have submitted to the select committee as part of the record.

Thanks again for your cooperation in this matter.

Warmest personal regards and best wishes.

Sincerely,

JOHN BRADEMAS,
Member of Congress.

MICHIANA WATERSHED, INC.,
South Bend, Ind., February 3, 1960.

Hon. VANCE HARTKE,
Federal Building, Courtroom,
Indianapolis, Ind.

DEAR SENATOR: Last evening Mr. Robert Fischgrund brought the matter of appearing before the Select Senate Committee on National Water Resources to the attention of the board of governors of the Michiana Watershed Association, Inc.

Due to the fact that we had so little time to prepare an effective testimony the board agreed that we should submit our original statement of findings rather than be present at the hearing.

We appreciate your interest in water, and hope that we can be helpful to your committee in the formation of a national water policy which will benefit this area as well as the Nation as a whole.

Respectfully yours,

MICHIANA WATERSHED, INC.,
J. S. ROSE, *President.*

MICHIANA WATERSHED, INC.,
South Bend, Ind., February 3, 1960.

SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES,
Care of Judge Steckler,
Courtroom, Federal Building,
Indianapolis, Ind.

GENTLEMEN: The Michiana watershed is a nonprofit organization comprised of private citizens who are interested in developing and studying our water resources; particularly those of the Indiana-Michigan area as applied to the watershed of the St. Joseph River and the Kankakee River.

Our study of this problem indicates that water and water resources are no respecter of political boundaries; on the contrary it, like the rain that generates it and the winds that carry the rain, is completely interstate in nature.

While it is true the water problems occur on a local basis, the problems of use, pollution and even availability are often not our problems but the problems of our geographical, and not necessarily political, neighbors. With this in mind we feel we would like to urge the Senate Select Committee on National Water Resources to:

1. Accept once and for all the interstate nature of water and water problems, and as such provide both the governing legislation and the funds necessary for the study of water problems and water use and the enforcement of the legislation.

2. To formulate a long range national water resource policy divided into applicable geological and geographical areas. This will insure the steady development of our water resources and protect them for the people of our Nation.

3. The formation of National Water Resource Board with powers to control, develop and distribute water and for the statement of pollution. This Board would exercise similar control rights and powers to the Interstate Commerce Commission and the Civil Aeronautics Board, save that its powers would be in the areas of water and pollution.

Respectfully submitted.

MICHIANA WATERSHED, INC.,
J. S. ROSE, *President.*

POPE-HARDIN SOIL CONSERVATION DISTRICT,
Golconda, Ill., February 1, 1960.

SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES,
U.S. Courthouse,
Indianapolis, Ind.

GENTLEMEN: Please accept the attached information regarding the twofold water use and water control needs and problems of Pope County, Ill.

About 75 percent of the county falls within the watershed of the two principal drainage areas, namely, Lusk Creek and Bay Creek. Both flow directly into the Ohio River.

These two watersheds comprise two very distinctly different problems, due to the basic differences in the character of the land in each. The best agricultural land in the county is found in the lower basin of the Bay Creek Valley. Flood protection of this area is needed because the upper reaches of the creek and its tributaries have their origin in the steep and rugged part of the county. This condition is conducive to frequent and destructive flooding.

In the case of Lusk Creek, the agricultural area in the lower basin is comparatively small, and much of it is subject to back-water flooding from the Ohio. The upper part of the area draining into the creek is mostly marginal or submarginal agricultural land, forest land, rocky bluffs and canyons. Perhaps half of this area belongs to the U.S. Government as part of the Shawnee National Forest.

The Lusk Creek area is well suited for use as a public recreational area, and it is the desire of the U.S. Forest Service and the people of the county that a lake be created for recreational purposes by impounding the water in Lusk Creek.

These two areas are discussed in more detail in the two enclosures.

Yours very truly,

PAUL L. TROVILLION,
Member, Boards of Directors: Pope-Hardin Soil Conservation District, Shawnee Hills Recreation Association.

U.S. DEPARTMENT OF AGRICULTURE,
SOIL CONSERVATION SERVICE,
Golconda, Ill., February 2, 1960.

SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES
U.S. Courthouse,
Indianapolis, Ind.

GENTLEMEN: Mr. Paul L. Trovillion has requested that I give you a statement concerning conditions in the Bay Creek watershed of Pope County.

The Bay Creek watershed comprises 90,129 acres in Pope County, Ill., and 48,000 acres in Johnson County. In this watershed the Shawnee National Forest owns 30,781 acres in Pope County and 7,320 acres in Johnson County. All of this land is under good forest cover and management. In Pope County, soil conservation district cooperators own and have conservation plans on 32,853 acres in this watershed. I do not have this figure for Johnson County.

About 1954 the Army Engineers built the Reeseville levee across the southwestern part of Pope County. This cut off the natural drainage of a large acreage in the Bay Creek watershed which formerly drained toward the Cache River in Johnson County. Since that time, we have had severe flooding from headwaters after every rain. This has caused untold loss to the farmers in the bay bottoms from flooding and drowning out their crops during the growing season, 4 out of 5 years since that time.

Early last month an interest meeting was held for representative farmers in this watershed to inform them, at their request, of the possibility of assistance under Public Law 566. As a result, great interest was shown, and a steering committee was formed to work out further plans with the local soil conservation district board.

The SCS watershed party has made a brief trip over the watershed and feel that it is suitable for a project of this kind.

The bay bottom drainage commissioners have gone on record as being willing to do everything possible to aid in securing rights of way for any works of improvement under a watershed development plan.

We feel that if an application for this project is later approved, it will be of untold benefit to the farmers of Pope and Johnson Counties.

Very truly yours,

GEO. E. SMITH,
Work unit conservationist.

WATER USE NEED—SHAWNEE LAKE

Pope County lies in that rugged area of extreme southern Illinois known as the Shawnee Hills. Almost the entire county is included in the Shawnee National Forest, and the Government actually owns approximately one-third of the county.

This area was one of the earliest settled in Illinois, and at that time was most desirable because of its timber for building and clearing for farming, and its abundance of game and other wildlife. But through the years it has been used, abused, and exploited. The economy of the county is prostrate and the county government is "broke." There are only 4,000 people left in the county and large numbers of the young people are leaving as they finish school.

But those remaining have a will to stay and survive. They are rediscovering their land. Those things they once called their poverty, they now see as potential wealth. They feel that the vast, unexplored source of income lies in the field of tourist entertainment and recreation. They have the scenic Shawnee Hills, the historical spots and landmarks, but they lack the one thing in universal demand by the vacationer, a large body of placid water. They have the ideal

stream Lusk Creek, in which to impound the water to create it, and the creative will to do it, but so far, lack the means.

This proposed lake is our greatest water use need, and the means to get it is our problem. The six-county Shawnee Hills Recreation Association (whose purpose is to promote the development of the residential potentialities of the area) has taken the leadership, in cooperation with office of the supervision of Shawnee National Forest in popularizing the idea of the lake in the first place, and also in getting something done toward financing it. It was on their recommendation that last year Senator Everett M. Dirksen introduced S. 302 which would authorize building the lake, and Congressman Kenneth Gray introduced a companion bill in the House at the same time. Senator Paul Douglas has visited the lakesite and has promised to support any reasonable measure toward its accomplishment. A 4-man committee from the SHRA flew to Washington on January 22 and visited the office of Forest Service Chief McArdle to discuss the possibilities of early action on the matter. The committee was only assured that the Forest Service would give consideration to placing in their budget next year a sufficient amount to make a survey to determine the feasibility of building the proposed lake.

This is entirely too slow to do us much good. This is a thing we have been pursuing diligently for more than 2 years. Now with only a glimmer of hope of its accomplishment in the dim future. It is so vital to our survival.

We feel that such a program of development would have a progressively bolstering effect on our local economy from the very first driven stake and shovel of dirt, throughout the usable life of the structure. It would be the center and core of an industry whose benefits would be bounded only by the limitations of the vision, the will and ingenuity of the people themselves.

This is our water use need, and our problem is that of financing the means to meet it.

PAUL L. TROVILLION,
Brownfield, Pope County, Ill.

POPE COUNTY, ILL.

Pope County has a population of approximately 4,000 and the assessed valuation for taxation is $7,578,758. The total tax extension for all purposes for the year 1959 was $227,863.41. The various taxing bodies and the amounts extended are as follows:

Schools	$147,785.78
District roads	15,956.00
County highway	8,336.63
Cities, villages	6,567.91
All other county purposes	49,217.09
	227,863.41

The county highway fund as of January 15, 1960, is in debt in the amount of $27,095.07. This represents almost 4 years indebtedness, as the income for county highway purposes is only approximately $7,200 per year.

The maximum tax rate is extended in all cases.

Seven of the nine county officials, whose salaries are partially or entirely paid from county funds are not being paid regularly. Some of the officials have not been paid for more than a year.

76,832 acres of Government land in Pope County. 372 square miles in Pope County×640 acres per square miles=238,080 total acreage. 0.3227 percent of total acreage in Government ownership.

A STATEMENT AND REPORT TO THE CHIEF OF THE U.S. FOREST SERVICE, RICHARD E. MCARDLE, AND HIS ASSOCIATES CONCERNING POPE COUNTY, ILL., ITS PEOPLE, AND THEIR RELATION TO THE DEVELOPMENT OF THE PROPOSED SHAWNEE LAKE

(By Paul L. Trovillion, a lifelong resident of the county, past president of the Association of Illinois Soil Conservation Districts, and presently a member of the Soil Conservation Districts Advisory Board, Illinois State Department of Agriculture, January 1960)

The area now Pope County, Ill. has been basically agricultural since the first white people came here in the late 18th century and started clearing land for

agricultural purposes. At that time, it provided the ideal environment for simple frontier life, with timber for houses, for game cover and for fuel, its abundant springs for domestic water supply, and cleared "new ground" for crops.

Then began the 100-year-long era of exploitation which reached its climax at the turn of the present century, and which was followed by a 25-year slow decline. Farms became less productive, due to prolonged, merciless cropping, together with farming methods which resulted in destructive erosion and loss of topsoil. Simultaneous with this period came a rise in the standard of living of the country people, demanding a larger cash income. Consequently, as the standard went up, and the income went down, an accelerated movement of people—mostly young people—began toward the industrial cities, and many formerly good farms, but now exploited, marginal or submarginal farms were left to be sold for taxes, or to the Government or both.

The abandonment of farms for agriculture during "the great depression" was appalling. (More than one third of the county was purchased by the U.S. Forest Service for the Shawnee National Forest.) But the surviving good farm land has undergone a phenomenal recovery, through the means of modern technology, putting land to its proper use in accordance with its capabilities, and treating it according to its needs. Production recovery and land rehabilitation have been little less than spectacular.

Now we are discovering new resources. The redman discovered this a millenium ago; our pioneer fathers discovered it nearly two centuries ago; it has been used, abused, and exploited. Now we are rediscovering it. Those things we once called our poverty, we now see as potential wealth.

This is a land of natural wonders, mile upon mile of stately, cedar-crested bluffs with their projecting cliffs and shelter caves, lichen-covered rocks as old as time; high waterfalls, splashing rapids and deep, shady ravines; clear, sparkling springs and the rocky branches they feed.

It abounds in all manner of wildlife. From the cottontail rabbit, the squirrel, the 'possum, the 'coon, the fox to the white-tailed deer. Birds of the north, and birds of the south are here, for this is neither north nor south, but the "in-between country." From the tiny, fairy hummingbird to the staring hoot-owl; merry mockingbirds to files of honking geese; bobwhite quail to the wild turkey.

It is a land that holds history in the palm of its hand, a veritable outdoor museum of antiquity. The very poverty of its economic resources has inhibited its exploitation, and has permitted the past to live down through the years with little change. Here history is a constant, tangible and living fact.

Most of the 4,000 people now living in Pope County are members of families who have lived here for generations. We have remained here because we like it here. We like our neighbors and the noncomplex, friendly relationship that exists between us. It is pretty likely we love it for the same reasons it was attractive to our fathers, the first comers years ago. Many who have moved away would have stayed if it had been possible for them to make a living here, and some who went away and "struck it rich" have come back to the old home place to spend their retirement.

We people here love our hills and valleys, and bluffs and streams, and now we are developing a vision of sharing our beloved country with the teeming thousands who are deprived of the simple things we enjoy daily without a thought. We want to say to our city friends, "Come out and let us enjoy this together. See those lovely blue-green hills? They are the Shawnee Hills, and they are ours. But they are yours, too—and they are the possession of everyone who sees and feels and enjoys them—but nonetheless ours."

We have a will to stay and survive. To do so, we are adapting our pattern of thinking and doing to self-help activities unthinkable before. For example, the application of proper land use and management has resulted in unbelievable increases on good agricultural land; the consolidation and realinement of small road districts has resulted in an improved system of roads due to more efficient use of meager funds; better schools are developing since the adoption of the more economical unit system, and further, the development of homecraft production, adult education and other innovations, all add up to an upsurge of self-confidence and well-being.

But we feel that the vast, unexplored source for self-help lies in the field of tourist entertainment and recreation. We have our scenic Shawnee Hills; we have our historical spots and landmarks; but we lack the one thing that is in universal demand by the vacationer, a large body of placid water. We have the ideal stream, Lusk Creek, in which to impound the water to create it, and the creative will to do it, but we lack the means.

But we feel there is a way. The land in private ownership involved in such an impoundment is readily available by donation or purchase, because everybody wants it. A large part of it, perhaps half, belongs to the Government as a part of the Shawnee National Forest. We feel, through the channels of the recreational development program of the U.S. Forest Service, that this "Shawnee Lake," a gem in the midst of the forest, could and should be built.

We feel that such a program of development would have a progressively bolstering effect on our now prostrate local economy from the very first driven stake and shovel of dirt throughout the usable life of the structure. It would be the center and core of an industry whose benefits would be bounded only by the limitations of the vision, the will and the ingenuity of the people themselves.

RESOLUTION

Whereas by nature much of southern Illinois is endowed with undeveloped facilities suitable for recreational use; and

Whereas there is great economic need for development of these many potential facilities; and

Whereas the future welfare of the increasing number of residents of Illinois may be dependent in large measure on the extent to which all recreational facilities are developed and expanded; and

Whereas the people of southern Illinois are waging an organized drive for funds with which to secure the development of certain recreational sites in that part of the State; and

Whereas there already has been introduced in the Congress a bill (S. 302) authorizing the construction of a 3,600-acre lake on Lusk Creek in the Shawnee National Forest in Pope County, which will provide valuable recreational opportunities: Therefore, be it

Resolved, That the advisory board to the Illinois Department of Conservation, in regular meeting this 17th day of February 1959, commend the efforts of the people of southern Illinois, and urge the Members of the Congress of the United States to act favorably upon S. 302, an dthat copies of this resolution be forwarded to the Illinois Members of Congress and to the officers of the Shawnee Hills Recreational Association, which has been a leader in the movement for recreational development of the Shawnee National Forest.

CHARLES G. SAUERS,
Chairman, Conservation Advisory Board, State of Illinois.

The CHAIRMAN. Senator Hart will continue the hearing right through the luncheon hour and as soon as Senator Hartke and I can do so, we will return.

Senator HART. We have had testimony from the Ohio Valley Improvement Association, but I understand that Hudson Biery, speaking for the association, will make an additional statement.

Senator HARTKE. I might say this: He has been a longtime friend of mine, also, and I have known him and worked with him for many years prior to the time I went to the U.S. Senate and even before when I was mayor of Evansville, so I am real glad to see him here.

STATEMENT OF HUDSON BIERY, EXECUTIVE VICE PRESIDENT, OHIO VALLEY IMPROVEMENT ASSOCIATION

Mr. BIERY. Mr. Chairman, in view of the lateness of the hour, I think I will be content with filing my formal statement and merely addressing the attention of the committee to one or two exhibits which relate to matters that I think are pertinent in this hearing and yet have not so far been mentioned.

Senator HART. Very well. The statement in full will be included at this point in the record.

(The statement referred to follows:)

STATEMENT OF HUDSON BIERY, EXECUTIVE VICE PRESIDENT, OHIO VALLEY IMPROVEMENT ASSOCIATION, CINCINNATI, OHIO

Gentleman of the committee, my name is Hudson Biery. I live in Cincinnati. I am executive vice president of the Ohio Valley Improvement Association, also a Commissioner of the Ohio River Valley Water Sanitation Commission, representing the State of Ohio. The latter organization is an 8-State control agency duly authorized by Congress, which includes New York, Pennsylvania, West Virginia, Virginia, Kentucky, Indiana, and Illinois. I served as the first chairman of that commission when it was established in 1948. My activities in connection with both organizations have given me many opportunities to become fairly well acquainted with water problems of the Ohio Valley. Today, my testimony is in behalf of the Ohio Valley Improvement Association, and relates to navigation, storage reservoirs, and flood protection recommended by that organization. Our association is composed of a representative cross section of the Ohio Valley economy. It includes representation from many local and regional organizations, also representation from aluminum, atomic energy, banks, chemicals, coal, factories, petroleum, power, municipal and State agencies. It is a regional clearinghouse that tries to sift and emphasize the more pertinent needs of the entire Ohio Valley in areas of navigation, storage reservoirs, and flood protection for the various communities of the watershed. It conducts a fairly comprehensive program of research and education.

These groups band themselves together, select suitable representation that presents the community problems with suggestions for their solution to those responsible for government. This may mean testimony before many forms of public authority, ranging from Cabinet agencies to the Bureau of the Budget, or committees of House or Senate. It is their expression of the democratic right to petition. Gentlemen of the committee, this group is now in operation. Congress has shown a fine degree of understanding and cooperation throughout the years. There is no magic in the story of Ohio Valley development. Instead, you find a deep current of sincerity, reams of facts and statistics, presented patiently but persistently to the various government agencies responsible for making good use of the taxpayers' money. The economic aspects of the whole situation were recently summarized by one of our Louisville bankers who said this: "We look upon the appropriations recommended here as investments of the highest possible rating. Let us have a simple academic discussion on the sources of wealth. There are really only three—services, uses of money, and natural resources, including agriculture. These are the basic sources of money which provide much of the bread and butter of our economic life. Gentlemen, when industrial development in the Ohio Valley involves $15 billion of new capital investment in 9 years, I can say to you with firm conviction that this means a vast flow of goods for the service of mankind. It means hundreds of thousands of jobs, millions of dollars in interest and dividends and a very great flow of taxes on all of these things, going right straight back into the Federal Treasury."

Our statements and claims are based on outside and unbiased research studies and our recommendations are for those projects included in the program designed and planned by the Corps of Engineers.

Mr. Harry M. Mack, chairman of the board of trustees of this association, has presented our views with respect to the need for acceleration of the Ohio River modernization program. I desire to emphasize certain elements of this program. It is most important that sites be selected and plans made for at least five of the Ohio River locks and dams, including Uniontown, Cannelton, Belleville, Racine and Opossum Creek. Uniontown and Belleville are now authorized and Cannelton is expected to be shortly; Belleville is being planned, and Racine, Opossum Creek, Willow Island and Newburg are in the preauthorization study stage. At the present time, six major navigation facilities on the main stem of the Ohio River are under construction. Unless some new planning gets under way in fiscal 1961, this rate of development cannot continue.

We direct your special attention to a significant statement made a short time ago by Joseph R. Hartley, Department of Economics of Indiana University, in a study entitled, "The Economic Effects of Ohio River Navigation," appearing in the middle of page 36:

"Another consideration far too often ignored in planning public investment is the secular inflation tendency that seems to be built into the American economy today. Construction is unfortunately much more sensitive to inflation than

many other types of industry. The cost index for heavy construction has risen steadily since 1940 at a rate of about 4 percent per year. Labor productivity in construction work rises considerably slower than in manufacturing industries. It is physically more difficult to apply labor-saving equipment in the building trades than in mass production of a small, uniform end product under one factory roof. By a wry quirk of fate, most public investment is for construction of one form or another. Examples are highways, schools, waterways, airways, a considerable portion of defense expenditure, and public buildings of all descriptions. Rising Government budgets are probably more attributable to natural difficulties of automating the building industry than to some mysterious built-in inefficiency of any Government effort. If a legislature correctly concludes that a public building is essential to perform a service for the public, the sooner it's built, the better. A delay of a few years to save tax dollars probably will cost the taxpayer double the original estimate."

This philosophy applies equally to navigation, storage reservoirs and flood protection projects for the cities.

Under the friendly influence of many favorable factors generated by the Ohio River, industrial development of the Ohio Valley has amounted to more than $15 billion in 9 years. Please let your imagination toy with that figure in terms of new tax flow into the Federal Treasury that has been spawned by this outpouring of cash and confidence in the Ohio Valley.

TAX FLOW FROM OHIO VALLEY INTO FEDERAL TREASURY

The navigation, storage reservoir and flood control program of the Ohio Valley is financed almost entirely by the Federal Government. The total capital cost will be $4 billion of which $818 million has been paid, including 1959. That leaves an unfinished program of $3,197 million which, if spread over the next 15 years, would be about $210 million per year. At about what rate is the valley pouring money back into the Treasury? In the year 1957 the total corporation tax, personal income and social security taxes from the six States was over $18 billion. On the basis of land area within the watershed, the valley paid about $8½ billion. If we split the total area within the watershed, then the valley actually paid a little over $7 billion. If we average these two bases, then the valley actually paid, in 1957, $7,709 million.

However, if we take the total taxes paid for the whole United States and calculate the Ohio Valley part on a land area basis, we should pay $3,291,880,000 or on a population basis $7,564,320,000. If we average this, we should pay $5,428 million. In other words, Ohio Valley paid, over and above its share of the national tax load, based half on land area and half on population, about $2,136,320,000 in one year, 1957. On a 15-year plan, the total development program in navigation, storage reservoirs and flood protection calls for $210 million per year. The navigation program should move faster than that.

GROWTH OF TONNAGE

We will not dwell on the oil, the coal, the steel, the chemicals, the bank clearings, the taxable dividends, the vast power empire (privately owned) and the atomic energy developments of the valley. Others are doing that and it is constantly being repeated by a wondering and incredulous press. We are attaching a few typical articles as exhibits to supplement this testimony. Navigation facilities designed for 13 million tons carried 22 million tons in the year of dedication (1929) and 81.6 million tons in 1957.

This Ohio Valley represents a vital America at work—vigorous, productive work. If it costs $15,000 capital investment to provide an average job for one man in this country, then this $15 billion expansion has produced more jobs in 9 years than all the jobs of Pittsburgh and Cincinnati combined.

The rehabilitation of antiquated and outgrown locks and dams should be pushed to completion as fast as the work can be done. General Itschner, Chief of Corps of Engineers, has well stated that a new time schedule is needed. If we should be confronted with a national defense emergency, then 1970 is too long and too late.

THE SURVIVAL PROGRAM

Another phase commands serious consideration. The whole country is straining quietly but effectively to develop a survival program that will include dis-

persal of important industries, progression in management, evacuation from shattered areas, microfilming of records stored in safe places widely separated from prime targets. Many of the best minds of the country are laboring on the unpredictable details of this threat. Public authorities dealing with atomic energy, reactor plants, and pollution control are concerned over normal operations, spills, possible pollution, etc. What would happen to the Ohio River if nuclear attack hit Pittsburgh, or Cincinnati, or Huntington, or Louisville? What would happen to the scores of cities that depend upon the Ohio River as a water supply? Suppose the river should be contaminated by atomic fallout from Cincinnati to New Orleans? Possibilities are awful to contemplate but the situation could be resolved into a much less fearsome thing if more of the 19 big high level navigation dams were in service. Some measure of control could be exercised by the Corps of Engineers in the manipulation of facilities that still remained operative in the upper reaches. A river can flush out much of its own contamination if there is enough reserve supply. The possible use of the navigation dams in an atomic emergency is not one of their evaluated benefits, but the values are there, just as they are in the storage reservoirs.

In his address before a recent meeting of our association, General Itschner said, "I will not mince words: I tell you, as other representatives of the Corps of Engineers have told you before, that this Ohio Valley, with its teeming towns and vast industries, is a sitting duck for a big flood. You are gambling against unpredictable nature with perhaps greater stakes than any group of people has ever gambled in human history." That is what General Itschner said and he almost called the shot when a few months later, numerous flash floods did harass the Ohio Valley in Kentucky and West Virginia. General Itschner might have gone a little further in his observation about "sitting ducks" and the importance of low-flow augmentation that would be possible and available in an emergency if the numerous uncompleted storage reservoirs could be completed throughout the broad tributary system of the Ohio Valley—the Allegheny, the Monongahela, the Kanawha—all the way down to Big Sandy, the Green and the Rough Rivers. Then if our Ohio River should suffer from contamination by atomic onslaught, fresh good water would be immediately available in many areas that could quickly flush out the troubled Ohio and restore hope to its suffering humanity. This is no idle threat or dream. Let us proceed with first things first, and build all of these storage reservoirs as fast as the Corps of Engineers recommends them in their reevaluation of necessities. If some of them are not built now, they may never be built due to the preemption of sites for other uses. Let us discourage foolish talk about "pork barrel" legislation. Let us get these things in proper perspective.

Nature has a curious habit of distributing her blessings and catastrophes. Three years ago, the floods devasted West Virginia and Kentucky. Last year it was Indiana, Ohio, and Pennsylvania. This emphasizes the importance of Indiana's Wabash Valley program, Mississinewa, Salamonie, Huntington, Mansfield and Monroe Reservoirs in Indiana. It also calls attention to West Branch on the Mahoning in Ohio, and to the Shenango in Pennsylvania.

Much has been accomplished since the comprehensive Flood Control Act of 1936, but there is also a lot of unfinished business. Many of the most critical situations are included in the copy of this association's most recent presentation to the Bureau of the Budget, which is being filed with you today.

Many of the values are set forth in the flood control, storage reservoir, low-flow augmentation program under normal circumstances. The emergency values I have recited are plus values—undeclared dividends—that could help to safeguard the welfare of 20 million people.

EFFECTS OF THE TRISTATE FLOODS

On February 24, 1959, our official Newsletter carried the following pertinent summary of flood results in Indiana, Ohio, and Pennsylvania, as follows:

Ohio Valley floods show the folly of delay

The Ohio Valley, principally the northern portion, suffered a $117 million flood loss in January and early February—and although Army Engineers' flood control and flood protection works prevented damage estimated at $123 million, another $20 million would have been saved had authorized projects been in place.

Twenty-seven reservoirs, including fourteen comprising the Muskingum Valley system, contributed to the reduction of losses in the January inundation. Included, also, were six reservoirs above Pittsburgh along the Allegheny River (the storm pattern did not bring those within the Monongahela Valley into play), the Tom Jenkins Reservoir in Ohio and others along the Beaver-Mahoning and Scioto Rivers.

The Muskingum River Reservoirs alone prevented damage estimated at $12,900,000; even so, they operated at only from 17 to 74 percent capacity.

Pennsylvania floods again

The huge Allegheny Reservoir, which OVIA has long recommended as a keystone of the Army Engineers' comprehensive flood control protection program planned for the Ohio Valley, would have freed the upper valley from flood and prevented at least $3,300,000 in existing damage at Warren, Pa., and other upper Allegheny River areas, in addition to contributing to reductions of flood stages at Pittsburgh.

The Shenango River Reservoir above Sharon, Pa. would have completely prevented damages to Sharon—where flooding equaled the maximum of record—and reduced stages generally within the Beaver and Ohio River areas. Overall, the Shenango River Reservoir would have prevented at least $6,750,000 in flood damage incurred throughout the area.

In Ohio floods hit Youngstown and Warren

The proposed West Branch Mahoning Reservoir would have prevented damage at $3,870,000 by virtually eliminating all flooding in Warren, Ohio, as well as contributing to stage reductions in the lower Beaver and Ohio River areas.

The Dillon Reservoir, under construction, would have saved at least $2,760,000 in property loss by completely eliminating costly flooding at Zanesville and lower portions of the Muskingum Basin, as well as contributing to stage reductions in that portion of the Ohio Basin below the point where the Muskingum enters the parent stream.

Indiana floods: White River, January 22; Wabash, February 12, 1959

Three authorized reservoirs in Indiana, Huntington, Mississinewa and Salamonie, would have made flood fighting at West Terre Haute a simple matter and otherwise would have eliminated the effects of flood at Wabash and Peru, as well as greatly lessening damage to upper Wabash communities such as Logansport and Lafayette. (The close-following February flood, second in severity only to the 1913 inundation, equaled the 1943 flood in the upper Wabash area, topping a floodwall at Peru and flooding both Peru and Wabash, Ind.)

Additional trouble came in Indiana with the failure of the privately built Mason J. Niblack Levee near Vincennes, with a result that nearly 10,000 acres of valuable land were covered by yellow flood. This area would have been completely protected had an authorized $3,300,000 Federal levee improvement project been completed. It will be remembered that Kentucky and West Virginia had devastating floods 3 years ago.

Our 1960 rate of construction in the Ohio Valley comprehensive navigation, storage reservoir and flood protection program is $104 million per year. This would take 31 years to complete the job in 1991. If we step it up to completion in 15 years, the annual rate should be $210 million. Can the Nation let this development wait 31 years when the tax flow into the treasury from the Ohio Valley is somewhere between $5 and $7 billion? Nature, and our international complications, do not wait.

EXHIBIT 1

[From the Enquirer, Mar. 17, 1958]

THE HEART OF THE HEARTLAND

More than ever before, the Ohio Valley is the industrial heartland of America. And Cincinnati lies almost at the midpoint of the 981-mile river which is the lifegiving artery of this industrial empire. So it is not inappropriate that the Queen City should aspire to be the economic and cultural "capital" of this rich and dynamic region.

We have always recognized in some measure our dependence on the river. In the last decade, it has been more obvious, because the river is so transparently the key to the stupendous industrial growth between Pittsburgh and Cairo.

In today's Enquirer, readers will find a large special section devoted to the dynamic Ohio Valley. It has been assembled and written with care. It is not just a series of "plugs" for river improvement and the industries most dependent on the river. On the contrary, there are many thoughtful and painstakingly prepared articles, such as the excellent one by Senator Thruston B. Morton of Kentucky.

What elements have brought about the astonishing growth of this industrial empire along the Ohio? At bottom, there are three factors.

One is the resources provided by a benevolent nature—coal in abundance, and a river that provides not only cheap transport, but water for cities and industries, and water also for cooling the condensers of great power plants.

Another element is the energy and imagination of business enterprise, of men who risk their capital and effort to build rewarding industries.

And the other element is the long-range investment program of government—in improving the river for navigation; in construction of atomic energy facilities; and in major outlays for expressways, urban redevelopment, stream purification and similar physical betterments.

This editorial is an invitation to every reader to take a closer look at the Ohio River Valley, through the columns of our special section.

It is also a reminder that if Cincinnati is to play its full part in the continued development of this busy, productive region, it must reexamine itself as a city.

It must make sure that it is functionally adequate for its role, with the communications, the marketing facilities, the cultural and amusement resources, and all the other elements required of the central city of the Ohio Valley.

EXHIBIT 2

[From the Sunday Gazette-Mail, Charleston, W. Va., Apr. 12, 1959]

EDITORIAL—RIVERS MAKING VALUABLE CONTRIBUTION TO ECONOMY

The long simmering controversy surrounding river transportation's place in the economy has been treated at length in a study made public last week, and from the conclusions reached we're satisfied that the Ohio and its tributaries have been beneficial to foe and friend alike.

Protagonists in the controversy have been the railroads and bargelines, with the railroads contending with some justification that, for the taxes they pay, the bargelines get more than enough of their costs back in indirect subsidies. But whether such taxes should be sharply increased, as the railroads sometimes suggest, is a question calling for more examination in light of the facts now available.

Prepared by Joseph R. Hartley of Indiana University, the study shows with historical and economic documentation that the Ohio and its navigable tributaries—including the Kanawha and Monongahela—have had a significant impact on the development and growth of communities as far back in the watersheds as mining towns on the lesser streams.

Revolutionary changes in river transportation equipment, plus improved canalization, have brought about a spectacular growth in river traffic, according to Dr. Hartley's findings. On the Ohio itself barge tonnage has grown from 22 million tons in 1929 to 81,600,000 tons in 1957, with many of the present barge tows amounting to four or five trainloads of freight.

The Kanawha and Monongahela also have experienced increased popularity as bulk freight arteries. Between 1948 and 1957 Kanawha River traffic, most of it coal and chemicals, climbed from 5,900,000 tons to 8,900,000 tons. And the Monongahela, the study says, "has been one of the most heavily traveled waterways in the world for many years."

But increased tonnages are in themselves only a minor part of the Ohio River story. The transformation of the Ohio and its major tributaries into superwaterways has encouraged industry to locate more than $13 billion worth of new plants in the region and thereby change what had been a declining economy into one of boom proportions.

As Dr. Hartley says, the Kanawha Valley has become the location for one of the biggest chemical complexes in the Nation; some of the largest aluminum smelters in the world have come to the Ohio Valley; and makers of other basic products have migrated to the Ohio and its satellite rivers.

"The resultant economic boom," he concludes, "may well have provided the railroads paralleling the Ohio with more freight traffic and revenue than would have occurred if the economy of the valley had continued its decline of the 1930's and 1940's.

He makes an interesting and cogent point, especially in times like these when so many people swept aside by the industrial revolution in coal mining have found jobs in Ohio and Kanawha Valley manufacturing plants.

EXHIBIT 3

[From the Courier-Journal, Apr. 12, 1959]

PORK BARREL? WELL, LET'S HAVE SOME OF IT

Everyone had a good time down at Dismal Rock near Brownsville April 4, at the ceremonies breaking ground for the $14,400,000 Nolin River Dam. It was a pretty spring day, and a big crowd turned out to hear Senators Cooper and Morton and Congressman Natcher. Members of the Green River Valley Citizens League and the Nolin River Valley Development League stood around looking pleased, as they had every right to do. They have worked a long time to get this dam underway, and it is going to mean a lot to the country around the valley.

Congressman Natcher had a good point when he criticized those who term appropriations for such work "pork barrel" implying political back scratching and the waste of Federal funds. We can't think of many ways that Federal funds could be better spent. By itself, the Nolin Dam will provide its worth in recreational area and in direct flood control. As part of the system of dams to control, store, and use the waters of the Green and its tributaries, it will help to serve a section of the State that can use the economic lift.

REVERSING A TREND

These dams on the Green, Barren, Nolin and Rough Rivers will eventually free this part of the State from floods, make the Green navigable by major barges and provide a year-around supply of industrial water that will make possible the industrial development of the region. For the past 15 years the towns along the Green River Valley have been losing population, jobs and income, though the hills along the river are rich with some of the world's largest reserves of coal. The river-development plan will help to reverse this economic trend.

Regardless of the role played in our economy by atomic energy, coal is going to be used for many years to come, if only because it is still the most economic fuel for the production of electricity needed in the production of atomic materials. And increasingly in recent years, power producers have been examining the advantages of building steam generating plants at the source of coal and transmitting the electricity to the point of consumption rather than shipping the coal to plants built near consumers. And here, of course, is possible opportunity for the Green River Valley.

Unfortunately, there is not now a year-around dependable supply of the plentiful water that such establishments as steamplants need. But completion of the dam system on the Green and its tributaries will assure a constant, controlled water flow that will support not only a vast electrical industry but the metals and fabricating plants that must have a nearby source of plentiful power. As Congressman Natcher says, if this is pork barrel, let's have more of it, and soon.

EXHIBIT 5

[From the Enquirer, Jan. 18, 1960]

TOWARD CLEAN WATER

When progress almost ceases to be news, it means we're really progressing.

Buried back in the run of the news in our columns one day recently was an article reporting that the Hamilton County Commissioners had about worked out the preliminaries for the construction of a $500,000 sewage treatment plant to serve the upriver drainage areas of Three, Four and Five Mile Roads.

Sewage treatment plants were virtually as rare as hen's teeth a decade ago.

According to a report made to a committee of Congress last fall by Edward J.

Cleary, executive director and chief engineer of the Ohio River Valley Water Sanitation Commission, when the commission began its work in 1948 less than 1 percent of the 3.6 million people living along the banks of the Ohio River provided any treatment for their sewage.

Literally, the Ohio and its tributaries were an open sewer. Vast cities, towns, hamlets, industrial plants of all kinds simply poured their sewage and wastes promiscuously into the river. Each and almost all were in turn the victims of sin and sinners. The pollution content of the river grew steadily worse as it moved downstream—there being limits to the natural ability of a moving stream to purify itself. Indeed, there were seasons and occasions when only a minimum of self-purification could take place.

Today, Mr. Cleary was able to report, 95 percent of the population of the rivershed has a treatment plant operating or being readied for operation as fast as construction contractors can complete them.

This is a really epochal accomplishment, considering that there are 116 municipalities and at least 81 major industries depending upon the Ohio River for water and as a place for disposal of fluids.

Sewage treatment isn't cheap or easy. A great many millions of dollars have been spent in the urban communities—Pittsburgh, Cincinnati, and Louisville—on sewage treatment plants. So far as industrial wastes are concerned, three-fourths of the industries in the area have installed control facilities of one kind or another. Not all are adequate yet, but most of the industries now have done something to prevent degradation of the river water, where a few years ago virtually nothing was being done.

The progress, to date was achieved mainly through the eight-State river purification compact which was signed right here in Cincinnati. The Federal Government has helped, and is helping, but the affected States made it their own business to clean up the mess that was the Ohio River and its tributaries a decade ago.

This could not have been possible without the strong backing of public sentiment.

We hope that everyone in this vast area will never cease to realize the importance of what has been achieved, and will press for a continuation of the effort until a fully adequate job has been done.

EXHIBIT 6

ROBERT C. SMITH & ASSOCIATES,
Columbus, Ohio, January 21, 1960.

Mr. ROBERT C. LEWIS,
Manager, The Southwestern Ohio Water Co. Cincinnati, Ohio

DEAR MR. LEWIS: Enclosed is a hydrograph of a State operated observation well located on the sand and gravel terrace adjacent to the Ohio River at North Bend, Ohio. It is intended to be used to show the effect that the proposed Markland Dam on the Ohio River could have on well water supplies from the sand and gravel that underlies and borders the river, on one side or the other, throughout almost its entire length. If river stages for the same period (1958) are added to the hydrograph, the rise and fall of the ground-water levels in response to river changes will be obvious.

The point to be made is that the increased depth of water produced by the Markland Dam will result in higher ground-water levels adjacent to the river when the river is in pool stage. Because well yields are directly proportional to the head available, the added head will result in greater supplies of water.

Total supplies from the gravel adjacent to the river are governed by the infiltration capacity of the river bottom. The rate of infiltration is proportional to the head of water in the river. In some areas along the Ohio River it has been determined that the infiltration rate is about 250,000 gallons a day per foot of head per acre of stream bottom. Wherever such conditions prevail, an added four feet of water, for example, at pool stage would add one million gallons a day per acre of stream bottom to the available supply.

Sincerely yours,

ROBERT C. SMITH,
Consulting Ground-Water Hydrologist.

EXHIBIT 6A

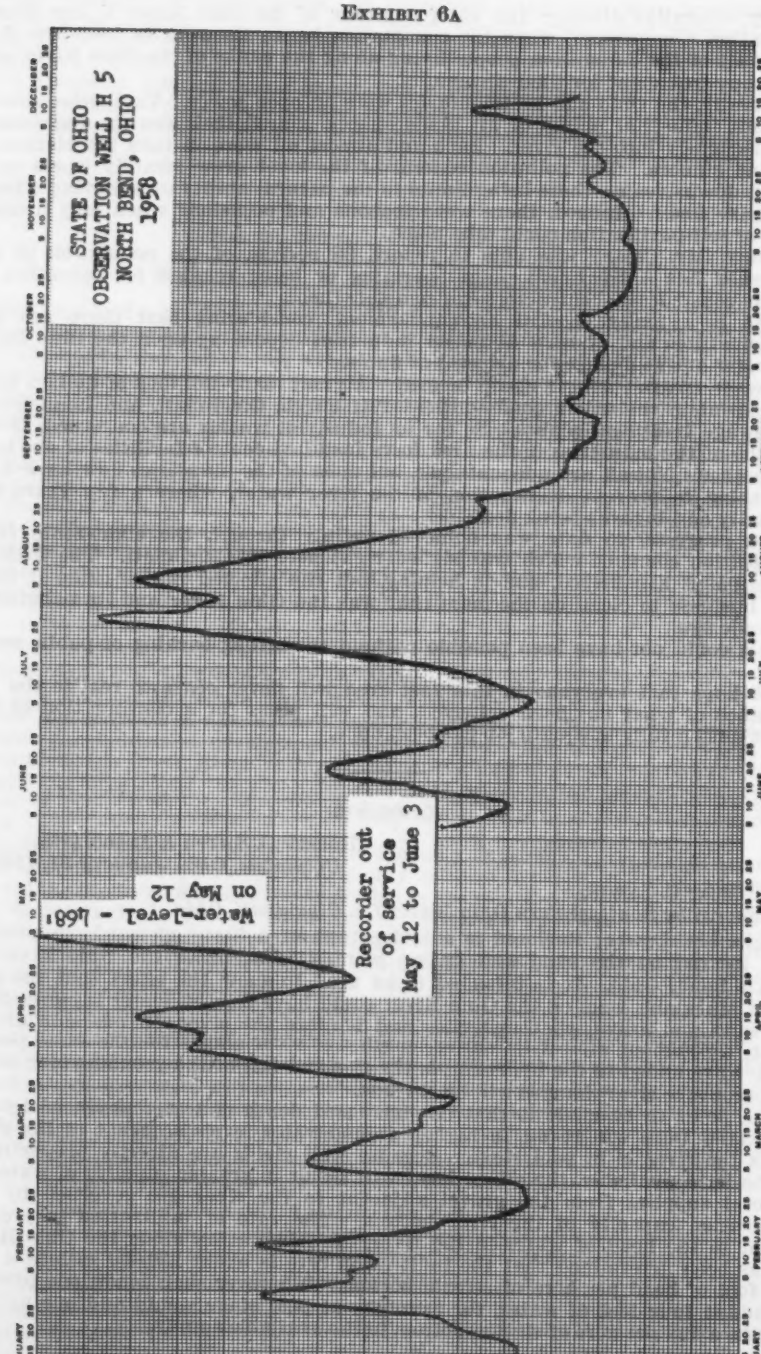
STATE OF OHIO
OBSERVATION WELL H 5
NORTH BEND, OHIO
1958
Recorder out of service May 12 to June 3
Water-level - 468 on May 12
ELEVATION OF GROUND - WATER LEVEL, FEET ABOVE SEA LEVEL
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

EXHIBIT 7

[From the Cincinnati Enquirer, Jan. 26, 1960]

THE OHIO: BUSIEST OF ALL GREAT RIVERS

(By William H. Hessler, Enquirer staff writer)

Rivers can be an absorbing study. They are as diverse as people, and have as much personality. Some are wild and unpredictable, like the Yangtze. Some are completely trustworthy, like the Nile. Some are steep, like the Columbia, and can be harnessed for power. Some are flat, like the Mississippi, and are good for navigation without dams, but may need dredging.

Some—like the Yangtze again—have broad flood plains, which they replenish with top soil from year to year. But others, like the Rhine, flow between high banks in narrow valleys, and draw tourists for their beauty.

Such is the diversity of great rivers.

Our own, the Ohio, is one of the great rivers of the world. It is not as long as most of the great ones; and it is a tributary of a much larger one. It is not as well-behaved as most, and has needed much taming.

But for various reasons the Ohio has become the busiest of all great rivers.

To appreciate the Ohio River, and understand its defects as well as its virtues, we can best take a fleeting look at a dozen of the great rivers of the world and then make some comparisons.

The longest of them are the Nile, the Mississippi-Missouri, and the Amazon, each about 4,000 miles from source to mouth. Ranking next are the Yangtze, flowing turbulently across the breadth of China; the Lena, reaching northward through Siberia to the Artic Ocean; and the Congo, flowing 2,900 miles through tropical rain, forest and grassland in the heart of Africa.

The greatest by far in terms of volume is the Amazon, discharging 7.2 million cubic feet of water per second. The next is the Plate-Parana, which taps the same vast rain-forest area of Brazil but makes its exit southward between Argentina and Uruguay.

The most cherished rivers, probably, are those which rise in lands of good rainfall and then flow into parched regions where water is the most precious of commodities.

The Tigris and Euphrates provide a good example. Rising in Turkey where there is fair rainfall, they flow into Iraq, which would be worthless desert otherwise, and join to form the Shatt-el-Arab for the last 100 miles to the Persian Gulf. Most of the water that flows into Iraq in the north either evaporates or else is drained off for irrigation. Only a very small fraction of it reaches the sea.

Diverse sources, and the lakes, give the Nile a remarkably uniform flow. It ranges with wonderful monotony from two feet deep in May to 25 feet deep in October, year after year, century after century. Thus for milenniums it has flooded a long, narrow plain, renewing the fertility of a slim, twisting garden that still feeds 25 million Egyptians. The Nile is the kindest of great rivers, because it brings water with unvarying consistency from the humid tropics where water is a nuisance to a great desert, where rainfall is less than four inches a year and water is infinitely precious.

The Ganges, angling down the most populous valley of India, is different. Fed by monsoon rains, it is less predictable. But it gives life to scores of millions, and so it has become a holy stream.

The greatest of Asian rivers, however, is the Yangtze. And like our own Ohio, it is a bad actor.

The great rivers of Siberia—the Lena, Ob and Yenisei— flow northward to the Arctic. They are navigable, at some places and times, but still untamed. Flowing across vast areas of permanently frozen land, they often spread over enormous spaces in flood. They carry great trees and even whole forests across the frozen plains into the ocean.

The Volga, on which I made a brief journey by steamer last summer, is much more like our Ohio. Although longer and larger, it is similar in being the main artery of a great national waterways network. Once it was connected to the Don by the Volga-Don Canal, it made possible the linking of the Black, Caspian, White and Baltic Seas, at the four corners of European Russia. The Volga is a barrier too, for east-west land transport. There are only a dozen crossings on this 1,500-mile obstruction. Russia has the greatest internal waterways system in the world, and the Volga is its spinal column.

Moving west, we come to the Danube, a river surrounded by history and intrigue. It rises in the free world, in the Swiss Alps and the Black Forest, and surges eastward into the Soviet world, back through Yugoslavia, and once more into the Iron Curtain country of Romania and Bulgaria and to the Black Sea. On a gentle gradient, the Danube is a useful river, navigable almost for its entire length. But navigation has its political problems nowadays.

The Rhine, with its source in the same high Alps, is much like the Ohio in aspect. It flows mainly between high banks, their beauty enhanced by vineyards and castles. But it is a much better behaved river than the Ohio. Fed by winter rains and melting snows from diverse climatic regions, it has a remarkable uniform flow.

For most of its 700-mile length, consequently, it is easily navigable, and without dams. The Rhine is an extremely busy river. I made some casual counts of the barges at Bonn, on a visit in 1958. In a half hour, one may see several dozen barges. These operate from the Swiss frontier to the North Sea, transshipping grain, timber, and other goods to or from oceangoing vessels in Holland.

The rivers of Norway and Sweden are not worth naming. They are short and steep, most of them, and useless for navigation. But they have given Norway more hydroelectric power per capita than any other country in the world. Happily, this superabundance of hydropower occurs in two countries that have no coal at all, and go far to make up to them for that misfortune.

Our Ohio is just the reverse. It is 981 miles long, and falls 437 feet in that distance. It is too gentle to provide appreciable water power. But it is too steep for navigation, as nature designed it. With its superb lock and dam system, however, it provides remarkably low-cost barge transport. And this is used above all else, to bring coal economically from the rich fields of Kentucky and West Virginia to power stations and industries along its 981-mile course.

Like the Rhine, the Ohio is a river of high banks and a narrow valley, and so is a river of great beauty. Unlike the Rhine, and most of the great rivers, it had to be made navigable, at some cost, by dams. In contrast to the Nile or the Rhine, the Ohio is a river of violent and unpredictable moods, with natural stages here near the midpoint that range from 3 to 80 feet.

The Ohio has many virtues, however. As now canalized, it has at least 9 feet of water always. It is a year-round river, freezing over only once in about 11 years, for 10 days or so. It is wide enough for any commerce, varying from 700 feet to 6,000 measured from bank to bank. Its high, stable banks make possible high bridges that do not hamper traffic. Except in flood, the current is only a mile or two an hour.

Quite aside from navigation, the Ohio is immensely valuable because the geological formation is such as to provide unlimited reserves of pure underground water beneath its entire length. Many dams have cramped the style of the Ohio for the most efficient navigation and for pleasure craft. But this is being remedied by the new high-lift dams.

In spite of some natural handicaps, the Ohio has been made by man into one of the most useful rivers of the world. In its middle reaches, it carries more commerce, in tonnage terms, than any other stream or any manmade canal.

And on its banks, because of the coal nearby, the low-cost barge trade, and water for industry, there has grown up the greatest industrial empire flanking any river on earth.

EXHIBIT 8

A DISCUSSION ON AGRICULTURAL IRRIGATION IN THE MIDWEST AREA

(By Donald R. Sisson, extension agricultural engineer, Purdue University)

Irrigation is one of several practices that is evolutionizing agriculture in the Midwest. In every phase of crop production, the trend is to put into use on the farm those scientifically proven practices that are taking the gamble out of farming. Along with irrigation or moisture management, some of the more important of these practices are improved machinery, including tillage, planting, and harvesting equipment; proper fertilization according to chemical soil tests and dependindg upon the crop grown and production anticipated; the use of improved crop varieties; pest and disease control; and crop processing and storage, including such things as grain and hay drying.

In discussing irrigation I mention these other practices because all of them, including irrigation, are a part of the increased mechanization taking place in

agriculture. These practices are interdependent on each other. There must be progress in each phase if increased total efficiency of crop production is to result. Certainly, irrigation of farm crops cannot be successful unless the farmer practices proper fertilization, uses adapted varieties, and controls disease and insects attacks. Likewise, we are finding that even here in the humid Midwest that some farmers can justify the investment in modern machinery and equipment and high fertilization practices only if irrigation is used to assure high yields every year.

Note that irrigation and these other practices are being used primarily to increase the efficiency of production and that increased yields are a result of this increased efficiency. For the immediate future most agriculturists are concerned with falling farm prices and surpluses of farm products. This is an immediate problem. However, 20 years in the future our statisticians tell us the U.S. population will have increased several million and that factories, residences, superhighways and such will take millions of acres of farmland out of production. At that time greater total production and per unit production may be an absolute necessity.

THE PLACE OF IRRIGATION IN INDIANA AND THE MIDWEST

Most of the area east of the Mississippi River receives sufficient annual rainfall to produce abundant crops, if the rainfall comes in proper amounts and intensities at the right time. However, there is seldom a season when this occurs. For instance, the following information shows lengths of time without appreciable rainfall and the average frequency of this occurrence in Indiana:

Drought periods in Indiana, average for 45-year period [1]

Duration of drought:	*Average number of drought periods per year during growing season*
11 days or longer	4.0
16 days or longer	2.0
21 days or longer	1.0
26 days or longer	.5
31 days or longer	.3
36 days or longer	.2
41 days or longer	.1

[1] Drought is defined as a period in which less than one-fourth inch of rainfall occurs in any 24-hour period.

The severity of any drought is directly related to the following factors:

1. Percolation rate of soils: Much of the rainfall does not fall slowly enough to be absorbed by most soils. Therefore, during the growing season the portion of rainfall that becomes runoff is lost for use by the crop.
2. The waterholding capacity of the soil: The ability of soils to hold moisture available for plants varies depending mainly on soil texture. The lower the waterholding capacity the more subject to drought the soil becomes. Obviously, no soil can hold enough moisture at any one time to produce a crop.
3. Plant rooting depth: Shallow rooted plants are more seriously damaged by drought than deep rooted plants, since the top several inches of soil dries out more quickly and is the first to reach the wilting point.
4. Rate of water use by plants: Rate of water use by plants varies depending on the plant and its stage of growth. Also humidity, sunlight, temperature, wind, and available soil moisture influence rate of water use by plants.

When all of the climatic, soil, and plant growth factors are considered along with results that have been obtained, one may conclude that irrigation definitely does and will have a place in the humid Midwest.

EXTENT OF IRRIGATION

Agricultural irrigation is a relatively new practice in this area and definitely is still in the infancy stage. The following table shows the amount and growth rate of irrigation in Indiana and in the midwestern area:

Acres irrigated [1]

Year	Indiana	8 Midwest States [2]
1940	685	16,264
1945	830	14,432
1950	5,339	42,343
1954 (estimated)	25,000	213,000

[1] The figures for 1940, 1945, and 1950 are from the "Agricultural Census"; the 1954 estimate is based on figures given in a paper by Howard T. Critchlow, A.S.C.E. Conference at Salt Lake City, Utah, on Sept. 9, 1954.

[2] Kentucky, Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin.

The longtime potential for irrigation in this area is considered very good. In Indiana alone it is estimated that there are over 2 million acres of naturally droughty soils where crop production would benefit every year from irrigation. The present irrigated land in Indiana represents only slightly more than 1 percent of this total. Of course, not all of this droughty area could ever be irrigated because of limited water supply or other factors.

SOME RESULTS AND BENEFITS OF IRRIGATION

Some of the results of irrigation in the Midwest have been highly publicized during the past few years. Of course, the results getting the most publicity are those most favorable to the use of irrigation. However, not all results of irrigation by college agricultural experiment stations and by farmers have been so favorable. We are gradually learning under what conditions irrigation will be successful and what other management practices must be used if irrigation is to be successful anywhere in the Midwest. Irrigation will be most profitable on high value crops, such as vegetables, when grown on the most droughty soils. Good farm management practices are highly essential for a farmer who plans to irrigate. If plant population, fertility of the soil, poor drainage, insect control, weed control, or some other factor is limiting crop production, then irrigation cannot give satisfactory results. The farmer who is most successful at irrigating is using irrigation as a means of getting very high yields, and not as a practice just to save the crop.

The principal irrigated crops in the Midwest are vegetables, field corn, hay and pasture, potatoes, fruits, and tobacco. Nearly every State in the Midwest has by now conducted some studies on results of irrigation. Kentucky reports excellent results from tobacco irrigation. Michigan and Ohio report irrigation to be a very profitable practice on vegetable and small fruit crops. Missouri reports good results from irrigation on some field crops. Tennessee found irrigation of pasture for dairy cows was highly profitable. In Indiana we have studied effect of irrigation on field corn and pasture and hay crops. Some of the results of corn irrigation are as follows:

Irrigation of field corn on Plainfield Sand, Purdue University Agricultural Experimental Station (yield in bushels per acre)

[Yield in bushels per acre]

Year [1]	Irrigated	Not irrigated
1949	132	60
1952	130	55
1953	144	40
1954	130	80

[1] These are the only years this study has been conducted.

Two years of irrigation on clay loam soils indicates that the value of irrigation for field corn on these soils is very questionable.

Three years of Purdue research indicates that irrigation of pasture and hay, coupled with other good management practices, assures the continuous production of high-quality forages throughout the growing season. Several studies with alfalfa have shown that yields of 5 to 6 tons of hay per acre may be expected

when irrigation is used. Yields of nonirrigated alfalfa in this study were 2½ to 3½ tons per acre.

Yield increases are the principal benefit of irrigation. However, there are many other benefits, including improved quality of crops, insurance against crop loss, frost protection, and obtaining improved stands of new seedings.

WATER SUPPLIES A PROBLEM

The first important requisite for agricultural irrigation is water—plenty of it. Let us consider here just how much water is required. The designer and the user of an irrigation system must be concerned with both the pumping rate and with the total volume of water needed during the crop-growing season.

The pumping rate may be determined when these factors are known: Acreage to be irrigated, amount of water to be applied at each irrigation, the period of time allowed to irrigate, and the number of hours the system will actually operate. To determine these factors we must know the kind of soil to be irrigated and the crop to be grown. What we plan on doing then is to apply as much water as will be held in the soil within the root zone of the crop to be irrigated. The next irrigation would come before the soil moisture has been depleted to the wilting point. In actual practice the required minimum pumping rate will usually range from 5 to 15 gallons for each acre to be irrigated. A farmer planning to irrigate 100 acres, for instance, probably would purchase a pump that would deliver 1,000 gallons per minute.

Usually amounts of irrigation will range from 1 to 4 inches; this water will be applied at rates ranging from a minimum of about one-fourth inch per hour to over an inch per hour, depending on the maximum infiltration rate of the soil. Frequencies of irrigation during drought periods will range from 3 or 4 days to 10 or 15 days.

The total amount of water required is dependent on the above factors plus occurrence of rainfall and drought. A farmer irrigating a crop on a droughty soil, on the average, would probably irrigate two or three times during the season. Allowing additional amount for evaporation losses, this might be a depth of water of 9 inches to be pumped on each acre. This would be nearly 250,000 gallons per acre. By comparison, a farmer irrigating 100 acres and using water at this rate would use about as much water in a year as a town of 1,500 population would use for domestic use, allowing 50 gallons of water per person per day. The important point to remember is that the greatest demand for irrigation would come at the driest time of year and nearly the total demand for irrigation might come within a 2-month period.

There is no doubt that existing sources of water will not provide the quantities needed for domestic, industrial, recreation, navigation, and agricultural irrigation uses. That is one of the reasons that most States in this area are taking steps to see that existing water sources are used so that the greatest total benefit will be received and also to see that new water resources may be developed. Our water supply problems may be as critical in the Ohio Valley 20 years in the future as the problem now is in any western area of the country.

EQUIPMENT USED FOR AGRICULTURAL IRRIGATION

Nearly all of the irrigation in the Midwest area has been by the sprinkler method. Probably the greatest reasons for this are the kinds of soils encountered and the generally undulating topography. There are some areas where the topography and soils appear to be suitable for some surface method of irrigation but so far these have not been developed to any great extent.

A sprinkler irrigation system usually consists of a pump and power unit to supply water under pressure, main and lateral pipe to carry the water, and sprinklers to distribute the water on the land. The lateral pipe and sometimes the main line pipe, pump, and power unit are portable. Most of the pipe now used is aluminum.

There are two principal types of pumps used for pumping irrigation water. These are the horizontal centrifugal pump used for pumping from shallow wells, streams, and lakes, and the turbine pump used for pumping from deep wells.

Several types of power are available for irrigation.

Gasoline engines

This is the most common power unit for irrigation and is probably the best suited for small and medium sized systems where the pump and power unit must be portable.

Liquid petroleum gas engines

Operation and maintenance compares favorably with gasoline engines. Cost of operation compares favorably with gasoline engines when the cost per gallon is less than 70 percent of the cost of gasoline. This unit is best adapted to systems that need not be portable.

Diesel engines

These units have a higher initial cost than gasoline units, but are lower in cost of operation, and repair service is not so readily available. To be economical, these units should operate a minimum of 600 to 800 hours a year.

Electric motors

Where the power unit need not be portable, electricity is an excellent source of power for irrigation. Electricity has several advantages over other power sources for irrigation including lower maintenance costs, convenience of operation, and no fuel hauling. When electric power is desired, representatives of the local electric power supplier should be contacted; they will determine whether use of electric power is feasible. Usually a 5 or 7½ horsepower motor is the maximum allowed on single-phase lines. For a greater power requirement three-phase may be necessary.

Farm tractors

This is a satisfactory power source for small to medium systems but one that may not be most economical in operation, since the power available may not match the power requirement.

Aluminum pipe for irrigation is normally available in size 2 to 8 inches in diameter and lengths from 10 to 40 feet. Most operators prefer to use the 20- or 30-foot lengths.

The choice of sprinkler head is mainly one of size. The smaller capacity sprinklers operate at less pressure, thus require less power; the larger capacity sprinklers operate at greater pressures, and thus require greater power. When using the smaller sprinklers, lateral settings are closer and the labor required to move the pipe is greater, whereas when using larger type sprinklers, lateral settings are farther apart and the labor required is less. Capacities of sprinklers commonly used vary from 5 to 300 gallons per minute each with operating pressures ranging from 20 to 120 pounds per square inch. Maximum diameter of coverage of these sprinklers varies from 80 to 420 feet. Sprinklers have been developed with capacities of over 600 gallons per minute.

PROBLEMS IN USE AND MANAGEMENT OF AN IRRIGATION SYSTEM

One of the main problems the farmer faces in the operation of his irrigation system is the labor requirement. Moving irrigation pipe by hand is drudgery where working conditions are at their worst. Just imagine carrying 30-foot lengths of tubing across rows of tall corn when the air temperature is 100° F. and the ground is muddy underfoot. One of the principal means of reducing this labor requirement in tall corn is to leave out two or more rows of corn where the irrigation pipe is laid so that a vehicle can be used to haul and distribute the pipe. Where this system is used the large or "big gun" type of sprinkler will be found. Rather new in sprinkler irrigation equipment is the automatic self-propelled irrigation system. These are not in widespread use as yet and their value must be proved.

Another problem is for the irrigator to make full use of the irrigation system after making his investment. Optimum returns from the use of irrigation cannot be realized unless water is supplied in accordance with the needs of the crop. Soil moisture in the root zone should be examined frequently and water applied as needed. Reliable soil moisture measuring instruments should be used to determine the moisture content of the soil in the crop root zone. An investment in such an instrument will be only a small part of the total cost of the irrigation system. Experience indicates that the use of these instruments will usually result in increased crop productions and decreased water-use and pumping costs. It has been observed that many farmers tend to underirrigate during the period of peak moisture-use rate and later during the growing season. Reduced yields will result when the moisture supply in the soil drops below the wilting point. The wise irrigator will make full use of his irrigation system and will consider rainfall as supplemental to his irrigation.

CONCLUSION

Agricultural irrigation appears to be one of many agricultural practices that will increase the efficiency of agricultural production in the Midwest area and it is a practice that will enable us to grow more food on fewer acres to sustain our increased population in the years to come. Irrigation is a practice that consumes large quantities of water. With the increase in the use of water for other purposes along with the increase in use for irrigation we are going to find ourselves in a situation where there will not be enough water to go around. We may find ourselves forced to use existing water supplies more wisely and efficiently and to develop new water resources.

EXHIBIT 9

SWITZERLAND COUNTY, IND.

HISTORICAL

The town of Vevay in Switzerland County grew from a settlement made in 1802, on land granted to John James Dufour and associates by the Congress of the United States to establish a wine industry.

The land grant extended several miles along the north shore of the Ohio River. The actual townsite was said to have been established by the existence of a buffalo road from the north, which entered the water at a ford now called Vevay Bar.

A post office was established in 1810. The town was formally laid out in 1813. At that time there were about 70 inhabitants, almost all of whom were natives of Vevey in Canton Vaud in Switzerland.

Although the quality of the wine made by the settlers was good and production soon reached 2,000 to 3,000 gallons a year, no market could be established in competition with corn whiskey which was produced very cheaply and without risk of loss in every community.

Vine dressing was abandoned after a few years. Vevay became a county seat, a trading center, and a busy river port for construction and loading of flat boats and steam packets.

A river town and port, it remained without railway and almost without road connections with Indiana until motortrucks replaced steamboats and motorcars replaced road wagons.

UTILITIES

The town of Vevay is furnished its electric energy by the Public Service Company of Ind., and the rest of the county is supplied by the REMC. There are plans for the construction of an 80,000-kilowatt hydroelectric plant at the Indiana end of the Markland Dam; this would give us a local source of generated energy.

The Texas Gas Transmission Corp. has a pipeline across the county; this gas can be made available for both home and industrial purposes.

The town of Vevay has a municipal waterworks supplied from driven wells. This water has a temperature of 55°.

Telephone service is provided by The Ohio River Telephone Co., Inc.

The town of Vevay has a closed sewage disposal.

The county has five fire companies:

The Vevay Volunteer Fire Co.
The Moorefield Volunteer Fire Co.
The East Enterprise Volunteer Fire Co.
The Patriot Volunteer Fire Co.
The Jefferson-Craig Volunteer Fire Co.

FINANCE

Switzerland County has three modern banks that have met the banking needs of the county for the past 90 years; namely, the First National Bank, the Vevay Deposit Bank, and the East Enterprise State Bank. These three banks survived the bank holiday period of the 1930's without loss to a single depositor and maintained substantial capital.

The community showed its interest in securing the local plant of the United States Shoe factory by providing more than $15,000 to help them construct their new plant in Vevay.

Any solid industry interested in locating here would find that this community would respond in a like manner, thus showing its approval and support.

MARKETS

The network of highways and waterways makes a large industrial market readily available. Cincinnati, Ohio, Pittsburgh, Pa., Chicago, Ill., St. Louis, Mo., Chattanooga, Tenn., Louisville, Ky., Cleveland, Ohio, Evansville, Ind., and Indianapolis, Ind., are within a 300 mile radius of Switzerland County. In Indiana and the States adjoining, there are more than 36 million people.

Switzerland County is situated along the Ohio River, in what is referred to as the tristate area. This is the trading area, which consists of Indiana, Ohio, and Kentucky. This area is the most heavily populated section between Cincinnati, Ohio, and Louisville, Ky.

SITES

Switzerland County can provide industrial sites with or without frontage on the Ohio River. There is an abundance of river-bottom land that is well above flood stage of the river. Some of this land is situated immediately below Vevay; some of it is 8 miles west of Vevay, and some of it is located on either side of the new high-level dam that is under construction at Markland. More high-bottom land is situated in the eastern part of the county near Patriot. The 1937 flood did little damage to Switzerland County as compared to other counties along the river. An unlimited supply of limestone is available from the quarries in Pleasant Township, and sand and gravel is available from the pits along the river.

LABOR SUPPLY

To industries interested in locating in Switzerland County, an attractive labor picture presents itself.

The available workers outnumber the local demand by 5 to 1. A few years ago an industry moved in and advertised for 400 workmen. They received 2,200 applications. More recently (summer, 1959) a small industry started the foundation for a factory to build prefabricated houses. It was rumored that they might employ 20 to 25 men. During the laying of the foundation, which is not yet completed (August, 1959) more than 100 men have applied for employment.

Seventy-five percent of our workers own their homes. Here this usually means, not only a house, but a home with grounds varying from a garden spot to several acres.

A large portion of these workers travel many miles to their daily work. They are willing to make this sacrifice, but they would prefer employment near their homes.

TAXES

Switzerland County is divided into 6 townships; the county has 2 incorporated towns and 11 unincorporated towns. The assessment throughout the county is no more than 20 percent of the actual value of all real estate and personal property—automobiles excepted. The average rate in the different townships is $5.83 per $100 of assessed valuation; in the incorporated towns the average rate is $6.39 per $100 of assessed valuation.

TRANSPORTATION

Switzerland County is well situated from the standpoint of transportation. The main truck lines are the Service Express, the Miami Transportation, and the O. K. Trucking Co.

Freight destined to the South and Southwest, as well as to the industrial areas of the North and Northwest, may be reached directly, or by connecting carriers.

Two ferry services connect Switzerland County with Kentucky.

A bridge is to be built on the Markland Dam, offering very good transportation to the South and Southwest.

Switzerland County is ideally located to take full advantage of the low transportation rates offered by river carriers. A 9-foot channel stage is maintained throughout the length of the Ohio River, thus affording barge trans-

portation service for commodities to and from Switzerland County. The Ohio-Mississippi River System, along with its many tributaries, serves to connect the Switzerland County area directly with Pittsburgh, Wheeling, New Orleans, St. Paul, Kansas City, Chicago, Nashville, and points on the Intercoastal Canal extending from St. Marks, Fla., to Corpus Christi, Tex.

A few of the many commodities shipped by water carriers include coal, sand, gravel, petroleum products, billets, pig iron, lumber, steel, coke, sulfur, and salt.

Some of the barge lines serving the Switzerland County area include the American Barge Line Co., Central Barge Co., Mississippi Valley Barge Line, and the Ohio River Barge Line Co., Inc. These 4 companies alone have a combined total of 679 vessels in service.

Switzerland County is served by several highways including State roads 56, 156, 250, and 129.

Switzerland County is adequately served by Indiana Trails Bus Lines to and from Cincinnati, Ohio.

SERVICE CLUBS, VETERANS' ORGANIZATIONS, AND CHURCHES

There are 24 service clubs and veterans' organizations in Switzerland County; most of these are located in the town of Vevay. The most active of these organizations are Kiwanis, Lions, Kappa Kappa Kappa, Delta Sigma Kappa, Business and Professional Women, Athletic Club, Veterans of Foreign Wars, American Legion, and Jaycees.

There are 29 Protestant churches and 1 Catholic church located in Switzerland County. Many of these churches have a full-time pastor, and support active youth programs.

The county has an active 4–H Club program of 25 clubs and a 4–H Junior Leaders' Organization, that meets the needs of the older boys and girls.

The oldest weekly publication in the State is printed in Vevay, the Vevay Revielle-Enterprise."

SCHOOLS

The schools of Switzerland County may be divided into three groups: The Patriot-Posey Consolidated Schools consist of an elementary school at Quercus Grove, with grades one to six, and the school at Patriot, which includes both elementary and high school. The Patriot High School has an enrollment of approximately 70 students. The high school curriculum includes academic, vocational agriculture, vocational home economics, and commerce. This school has an independent administrative unit.

Under the administration of the county superintendent of schools are the Jefferson-Craig Consolidated School, located at the city limits west of Vevay; the Pleasant Township, York Township, and Cotton Township Schools.

Vevay Town School is an independent unit. The Vevay High School has an enrollment of approximately 325 students. The curriculum offered consists of academic, vocational agriculture, vocational home economics, commerce, industrial arts and a general course. Both high and elementary schools of the county are staffed with competent instructors.

Both high schools in the county have bands, which are making contributions to their respective communities.

All public schools in the county participate in the national lunch program and serve hot lunches to the students each day.

Hanover College, a liberal arts school, is located on the hills overlooking the Ohio River, 25 miles west of Vevay.

There is one private engineering and trade school located in the county.

The Switzerland County Public Library, located in Vevay, serves the schools of the county and sponsors reading programs for the children during the summer when school is not in session.

AGRICULTURE

Switzerland County agriculture is made up largely of small farms. The average farm is 108 acres with about 35 acres tillable. Only about 30 percent of the total surface is in crops, compared to about 60 percent for the State as a whole. Tobacco is the chief farm product, accounting in 1957 for $1,650,000 out of a total $4,300,000 gross farm income.

In 1954 Switzerland County had 1,255 farms of all kinds, of these 1,000 were considered commercial farms. The following table shows a comparison between Switzerland County and Indiana. Data comes from the 1954 census.

	Indiana	Switzerland County
Gross income per commercial farm	$8,000	$3,300
Percent of farmers working off farm	50	40
Percent of farmers working off farm more than 100 days a year	33	22
Percent of commercial farmers who gross over $10,000 a year	24	1

The scale and type of farming predominant in the country are ideally suited to factory employment for farm operators. The interest in small farms lends stability to the labor force. Because of the rough topography in much of the county and the nature of tobacco production, the county's agriculture will probably always be made up of small farms.

RECREATION

Switzerland County has the possibility of becoming one of the choice recreation areas in the Midwest. It is bordered completely on the south and east by the Ohio River, with a background of high hills and beautiful trees providing a scenic picture that is unmatched in a five-State area.

With the completion of the high level dam at Markland, the pool of the Ohio River will extend over 100 miles upstream. This will not only become a playground for boating and water-sport enthusiasts but will afford excellent fishing, especially up the flooded creekbeds. The area below the dam will also provide ideal fishing.

The State conservation department plans a free access area to the river both above and below the dam. Three boat docks are in operation at the present time and more are planned with the completion of the dam.

Switzerland County also affords unmatched opportunties for the hunting of squirrels, rabbits and quail, as well as duck hunting, for the ones that are brave enough to get out early on a frosty morning and wait for the ducks to come in to feed along the river.

EXHIBIT 10

U.S. DEPARTMENT OF THE INTERIOR,
GEOLOGICAL SURVEY, WATER RESOURCES DIVISION,
GROUND WATER BRANCH, WEST VIRGINIA UNIVERSITY,
Morgantown, W. Va., January 21, 1960.

HUDSON BIERY,
Executive Vice President, Ohio Valley Improvement Association, Inc., Cincinnati, Ohio

DEAR MR. BIERY: Dr. Paul H. Price has requested that I reply to your letter of January 15 regarding ground water problems in West Virginia and the possibility that surface reservoirs may alleviate some of these problems. This office conducts ground water studies in West Virginia in cooperation with the West Virginia Geological Survey.

The major concentrated ground water developments are situated principally along the Ohio River, and supply industries and municipalities. Parkersburg is the largest municipality utilizing ground water. It derives its supply from several collector-type wells which rely in part on induced infiltration of water from the Ohio River. An additional collector well was recently constructed on Neal Island to augment the Parkersburg supply. It is our understanding that the additional well was needed to meet the increasing demand for water. As stated in Dr. Price's letter of January 13, the Du Pont plant at Parkersburg derives its water supply from radial-collector wells bordering the Ohio River. Although we have a little information on the history of the water supply at that plant, I gather that you are informed on their situation. Some years ago the city of Wheeling, in an attempt to augment its surface water supply, investigated the ground water potential of the alluvium bordering the Ohio River at Wheeling; however, no ground water supply was constructed.

Inasmuch as theory of induced riverbed infiltration establishes the relationship between ground water productiivty and river stage (or the head it imparts to the

aquifer system), it seems reasonable to assume that any dam or other structure that raises the river's stage will augment ground water supplies, in its immediate vicinity at least, by increasing the thickness of the saturated zone in the alluvium. The actual relationship presumably is highly variable however, depending as it does on the permeability of the riverbed, geology of the alluvium bordering and underlying the river, degree of development of the aquifers, etc. Presumably the same factors, but with some important variations, may be applied to reservoirs constructed in consolidated rock areas, such as underlie most of West Virginia.

In the upper reaches of the Kanawha River-New River Basin, which you mention, there are few or no major ground water developments. The alluvium bordering the streams is thin and narrow or absent. Ground water supplies are obtained from rocks of relatively low permeability compared with the Ohio Valley alluvium. The town of Princeton, in the headwaters of the Bluestone River in Mercer County, is supplied by a large number of wells. Its supply is considered adequate but is plagued by certain difficulties, particularly well- and pump-maintenance and well-construction difficulties. The town of Athens, farther downstream in the same county, has had considerable difficulty maintaining an adequate well supply but an additional, recently drilled well has corrected this at least temporarily. Still farther downstream, some towns, such as Fayetteville in Fayette County, reply in part or entirely on mine-drainage water. Presumably these supplies would be augmented if impounded reservoir water increased mine drainage. Still farther downstream, Charleston in the past utilized considerable ground water for air conditioning from the thin alluvium there and from the bedrock formations beneath the alluvium. However, many wells have been abandoned because of objectionable character of the water or local hydraulic interference between wells.

Sincerely yours,

GERALD MEYER, *District Geologist.*

EXHIBIT 11

WHEELING, W. VA., *February 3, 1960.*

HUDSON BIERY,
Executive Vice President, Ohio Valley Improvement Association, Inc., Cincinnati, Ohio:

As a representative of Wheeling Steel Corp., and a trustee of the Ohio Valley Improvement Association, I endorse full program as set forth by Mr. William Hull of the OVIA covering water resources and navigational projects during the 1959 annual meeting at the Netherland Hilton Hotel in Cincinnati Ohio.

WHEELING STEEL CORP.,
Capt. R. E. REED,
Marine Manager.

Mr. BIERY. Senator Kerr, at this time I would like to supplement my prepared statement with a few comments which might be called reading between the lines. First, I would like to refer to the very able statement just made by Senator Hartke. He told you that the 46 locks and dams still in use on the Ohio River were designed to carry 13 million tons, were carrying 22 million tons when completed in 1929, and that these same facilities carried 81.6 million tons in 1957. From time to time, ill-advised people criticize the U.S. Corps of Engineers for so-called optimism in arriving at their benefit-to-cost ratios. I submit that the figures just named by Senator Hartke are in reality a great tribute to the conservatism of the corps.

I would like to supplement the data about these 46 locks and dams with the information that, starting with an appropriation of $75,000 in 1824 "to remove snags and sawyers" and continuing until 1954, the accumulated total capital appropriations made by Congress for navigation improvements on the Ohio amounted to almost exactly $150 million. Spread over 125 years, this was at the rate of about $1¼ million per year. And yet these navigation facilities have been one of

the most significant factors in attracting $15 billion in new private capital investment in the Ohio Valley since 1950. Other factors, of course, included an improving water supply, low-cost power, low-cost fuel including coal, petroleum and gas, nearness to natural resources. It is well to keep these facts in proper perspective. Where has the Federal Government ever made a more profitable investment than the navigation facilities of the Ohio River?

Blucher Poole and Bob Kellum, both officials of Indiana, have emphasized the importance of low-flow augmentation, storage reservoirs and planning now for proper reservation of sites that will preclude their future preemption for other purposes. If this is not done now, in some situations it can never be done, and it's not entirely a matter of inflated costs. While we are discussing the importance of site reservation now, let us also take a firm position opposing those shortsighted individuals who would slow down conservation planning by attempts to recover resulting benefits from everyone along the line from Dan to Beersheba. For example, how could we approach, in a practical manner, recapture of capital costs of a reservoir like Allegheny? Here are a few questions to think about. Obviously, the first direct beneficiaries are the nearby downstream communities that would be made safe from floods. Quality and quantity of low-flow augmentation would be of immediate value to municipalities, industries, and, to some extent, agriculture—all the way from New York to Mexico. Recreational benefits would be obvious. Then we come to Pittsburgh where flood levels would be lowered. Flowing on down the Ohio River, the increased, regulated, better-quality flow would affect every village and city, all the way to New Orleans. Even at the lower city there would be some measure of value from encroachment of salt water at time of low-flow of the Mississippi. All industries and navigation all along the way would be benefited. How would you begin to allocate benefits from this wide diversity of values? There is simply no way to do it.

As to low-flow augmentation, suppose we take just two illustrations—the Kanawha and the Mahoning. Two years ago, I attended a conference of 12 industries held in one of the big plants at South Charleston. It was called to discuss ways and means of doubling the low flow of the Kanawha. The facts were, that some of the industries and municipalities were using all of the water in the Kanawha at times of low flow. Future expansion or new industries were impossible without more water. Bluestone Reservoir was in service, Sutton was under construction, and Summersville was proposed to complete the program. All will soon be helping out the Kanawha, South Charleston, and all of the municipal, industrial, navigation, and recreation interests from Gallipolis to New Orleans. How could you recover the costs of these improvements from so many widely differing beneficiaries? Plants of the Youngstown steel district use all of the water in the Mahoning 11 times. With its low flow increased, it is apparent that values would obtain at possibly higher rates than from the Kanawha. I am mindful of an expression from an old engineer who used to say, "Solution of pollution is not dilution." However, the latter does have a vast trail of contributory values.

I have already referred to a great potential in the development of ground water supplies that may be augmented in some situations by the valleywide reservoir program and the 19 high lift navigation

dams that will replace the present 46 small structures. Studies should be made to permit some credit in determining benefit-cost ratios as these water conservation impoundments increase cold, clear, ground water supplies that are so important to so many industries and municipalities.

I would like to direct attention of the Senate committee to my exhibit 8, an important discussion of agricultural values in surface water supplies, by Donald R. Sisson of Purdue. His paper is enlightening in two respects: First, in the great increase in production per acre, possible by watering field crops in the Central States; and second, in the vast volumes of water required for such watering. He finds that yield can be doubled but that the amount of water used for watering 100 acres of corn in an average Indiana drought season is about equal to the requirements of a town of 1,500 people for 1 year. If Professor Sisson is right, and we have no reason to doubt his figures, what will be the effect of such water use on our small tributary streams? Whose water is it? Whose interest shall be considered first—municipal, industrial, agricultural, or recreational? Here, again, no values are allowed for agricultural uses in reservoir impoundment in calculating benefit-to-cost ratios. The farmers of Jackson, Shelby, and Bartholomew Counties in Indiana know what these values are. There should be some credit but certainly no effort to recapture all of the costs of water resource improvements from its widely diversified beneficiaries.

Several of your witnesses before your committee have touched briefly on the extra dividend of recreational values flowing from the water resources program. Let's be a little more specific on how important these values may be. The shoreline of Kentucky Lake alone is more than 2,200 miles. In 1959, Kentucky has estimated its total vacationists as 4,900,000, spending about $500 million. According to the Corps of Engineers, visitors to the Cumberland River system of reservoirs exceeded 9 million last year.

The present shoreline of the Ohio River, its navigable tributaries and its system of reservoirs is 17,000 miles. When the comprehensive plan of 1936, 1937, and 1938 is finished, the new shoreline will be 24,000 miles. Already, recreation in the Ohio Valley is big business. Cities like Marietta, Cincinnati, Louisville, and Evansville have many thousands of pleasure craft. But no credit is given in calculating benefit-cost ratios on water resource projects. Increased leisure time is pyramiding recreational opportunity for the American people. It goes hand in hand with the motorcar and the highway system. We understand from the Department of Commerce that within 1 day's drive of Kentucky, live people who, in 1957, spent more than $41½ billion on recreation and vacations.

I must refer once more to the testimony of Blucher Poole, regarding the preemption of sites for areas vital to the successful planning and administration of our water resources program. If land reservation is not made now for these vital improvements, some of them can never be made. I direct the attention of the committee to a quotation from Joseph R. Hartley, of Indiana University, which appears in my formal statement, emphasizing the importance of moving more rapidly with these water resource projects as a counterinflationary policy. The essence of his discussion on this subject was this:

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Labor productivity in construction work rises considerably slower than in manufacturing industries. It is physically more difficult to apply labor-saving equipment in the building trades than in mass production of a small uniform end-product under one factory roof. By a wry quirk of fate, most public investment is for construction of one form or another. Examples are highways, schools, waterways, airways, a considerable portion of defense expenditure, and public buildings of all descriptions. Rising Government budgets are probably more attributable to natural difficulties of automating the building industry than to some mysterious built-in inefficiency of any Government effort. If a legislature correctly concludes that a public building is essential to perform a service for the public, the sooner it's built, the better. A delay of a few years to save tax dollars probably will cost the taxpayer double the original estimate.

This philosophy applies equally to navigation, storage, reservoirs, and flood projects for the cities.

May I please direct the attention of the committee to statements in my formal testimony, regarding the survival program as it relates to water resources? If we are behind schedule in our missile and space program, this emphasizes the importance of catching up a bit on the obvious safeguards that are vital in our water resource planning.

Senator Kerr, you questioned Mr. Harry M. Mack as to why some of our important navigation items were behind schedule. He hesitated in saying "appropriations," but the point was made clear. If you ask me the most vital steps that can be taken by the select committee, I would urge the following sequence:

(1) Construction start in 1960 on Belleville Dam.

(2) Planning and advance engineering in 1960 on Cannelton Dam.

(3) Keep our waterways free as they were always intended to be.

In closing my testimony let me emphasize this. Our 1960 rate of construction in the Ohio Valley comprehensive navigation, storage reservoir, and flood protection program is $104 million per year. This would take 31 years to complete the job in 1991. If we step it up to completion in 15 years, the annual rate should be $210 million. Can the Nation let this development wait 31 years when the tax flow into the Treasury from the Ohio Valley is somewhere between $5 and $7 billion? Nature, and our international complications, do not wait.

I want to thank the committee for its courtesy.

Senator HART. And for the committee, thank you for the time and effort that you put in, sir.

The chairman of the Interstate Finance Commission, also of Evansville, Richard Meyer—is Mr. Meyer here?

Mr. GREIF. He is not here, sir.

Senator HART. Is there a statement to be filed for him?

Mr. GREIF. The man who filed the previous statement filed his.

Senator HART. Very well.

It is somewhat a change of pace.

Mr. E. S. Reeves, the chairman of the Indiana Ducks Unlimited Committee. Is Mr. Reeves here?

Mr. GREIF. I have not seen him, sir.

Senator HART. If Mr. Reeves does come, would you be good enough to explain that he may file his statement for the record?

Mr. GREIF. All right, sir.

Senator HART. We would be glad to hear any supplementation.

Is Mr. Harry Thompson of the Old National Bank, Evansville, Ind., here?

Mr. GREIF. He appeared with me in the combined statement before.

Senator HART. Thank you. And Kenneth Lloyd, executive secretary of the Mahoning Valley Industrial Council.

Mr. SCHAD. Permission for file that statement has already been given Mr. Hull, Senator.

Senator HART. Stephen Baker, of Southern Indiana, Inc.

Mr. BAKER. Yes.

Senator HART. From Columbus.

STATEMENT OF STEPHEN M. BAKER, SECRETARY, SOUTHERN INDIANA, INC.

Mr. BAKER. I have several reports to file here with the interests of time and your kindness to permit us to appear here.

I am Stephen M. Baker, secretary, Southern Indiana, Inc., which is an organization representing 40-some counties in southern Indiana, and we wish to add our evidence here to the report.

We are tremendously interested in developing the watershed control program and since southern Indiana gets all of the runoff water from northern Indiana, we naturally would like to see the upper reservoirs developed, as well as reservoirs in southern Indiana.

I have filed also a report of the chairman of the committee, Mr. Walls, and also a brochure which gives the detailed information about the various watershed control programs in Indiana.

We are anxious not only to develop the major reservoir program which the State of Indiana and the Indiana Water Resource Commisison is doing such a fine job on, but we also would like to emphasize the coordinating of water storage through both the major projects under the Army Corps of Engineers and the small stream water control program under the soil conservation districts that we are anxious to see developed.

I think all the testimony that we have is condensed in the reports and I appreciate the opportunity of appearing here before you.

Senator HART. Thank you for coming, Mr. Baker.

Repeatedly as we have gone around mention has been made of the desirability of expanding the use of those small stream watersheds. This was something new to me at the outset of the hearings. But I have soon become convinced that here is an instrument available to us which is not enormously costly but is extremely effective.

I welcome your support of the notion.

Mr. BAKER. Frankly, this is the greatest and best way that we can get the control of these floods, stream pollution, and runoff of soil and topsoil, and so forth. We have some farmers back here with me today who have experienced the rapid erosion of their farms due to the fact of this runoff of water, and many of our counties here in southern Indiana, particularly which are kind of on the hilly side, are going into small dams and lakes and pond development and we think that needs greater emphasis than it is getting.

Senator HART. I am glad to hear it. I do, too.

This committee, as the chairman, I am sure, will explain later, is composed of members from the several standing committees of the Senate which have a responsibility for water. Included, of course, is the Committee on Agriculture and Forestry, and I sit on this select committee as a representative and a member of the Agricultural Committee. It is to this committee that the small watershed comes.

I think one of the desirable effects that the select committee's report will have will be the emphasis generally on the possibilities in these small watersheds.

Mr. BAKER. I happen also now to be secretary of this so-called Southern Indiana, Inc. But I am also the chamber of commerce secretary in Columbus, Ind.

We have had our county soil conservation districts set up for 5 years in which we help sponsor, and we are just now beginning to see some evidence of what that program can do. We think it needs more emphasis from the national level than it is actually getting.

Senator HART. Good. So do I.

Mr. BAKER. Thank you very much.

(The statements referred to above follow:)

STATEMENT OF STEPHEN M. BAKER, SECRETARY, SOUTHERN INDIANA, INC.

Hon. Robert S. Kerr, chairman, and honorable members of the Senate Select Committee on National Water Resources, I am Stephen M. Baker, secretary of a nonprofit organization of southern Indiana cities, chambers of commerce, businessmen, and farmers, known as Southern Indiana, Inc. The organization has membership from 40 counties in southern Indiana, and was organized in 1951 to promote the economic development of southern Indiana, including the important projects of controlling floods and conservation of our water resources.

Southern Indiana is mentioned in the report submitted for the State of Indiana by Gov. Harold W. Handley, as the area of Indiana having less plentiful supply of ground water. The less plentiful actually means little or no ground water storage due to the type of soil and limestone formation in that area. Therefore, in most areas of southern Indiana the communities must depend on surface water from our streams and rivers. And, during certain period of drought many communities have to ration the use of water.

Many industries desiring to locate in southern Indiana communities have gone elsewhere because of this lack of water storage. Southern Indiana needs more water storage reservoirs.

Also, the above report indicated the tremendous runoff of water in the southern half of the State. This creates flood problems on the Wabash, Ohio, and their Indiana tributaries. These dangerous and periodic floods work tremendous hardships on the people in all parts of Indiana, and particularly in the southern valleys of these rivers.

Southern Indiana has lost approximately 49,000 people in the last 5 years, according to a 1959 survey made by two Purdue University economists. The major cause is lack of job opportunities, which new industries would provide, and the mechanization of farms, which forced farm families off the smaller farms.

Dr. R. B. Stewart, vice president and treasurer of Purdue University, stated at the annual meeting of Southern Indiana, Inc., at Indiana University, October 1, 1959, "Southern Indiana will become the bedroom and playground for the major industrial centers of the Ohio Valley, Indianapolis, and the Calumet area." Therefore, we will need water for both domestic, light industry, and even recreation purposes.

I also wish to submit this brochure showing major water storage projects in Indiana and the vital part it plays in the economy of both northern and southern Indiana.

Therefore, we urge that greater emphasis be placed on coordinating the program of more surface water storage, both through major projects under the Army Corps of Engineers and the small stream watershed control programs, under soil conservation districts.

JOINT STATEMENT BY JOHN WALLS, CHAIRMAN OF THE WATER RESOURCES COMMITTEE OF SOUTHERN INDIANA, INC., AND RUDOLPH H. GRABOW, MANAGER OF THE INDUSTRIAL AND REAL ESTATE DEPARTMENT OF THE MONON RAILROAD

Projected water use requirements indicates that availability of water will be a major problem in a very few years. We would like to urge that Congress take action to permit the Corps of Army Engineers to be able to consider other water uses to qualify a project for Federal financing in addition to flood control

benefits. These should include low flow benefits for industrial use and navigation, municipal water supply, irrigation, and recreation.

As a result of seeking to interest industry in locating in southern Indiana and particularly in the area served by the Monon Railroad, we always encounter the question of available water supplies. In 1956, the Cullery Chemical Co. was seriously considering a site on the East Fork of the White River, near Bedford, Ind. Because of the fact that the flow of water in the East Fork of the White River, particularly in the months of August, September, and part of October, was reduced (and is reduced each year) to less than 500 cubic feet per second, they located in the State of Kansas on the Kaw River. This was necessary because more volume of water was required to dilute the wash residues and which was not possible in the East Fork of the White River. This firm makes solid fuels for propellants.

Recently, we have worked with a firm who is seeking a location which requires as much as 103 million gallons per month.

Another industry who examined this territory rather closely in 1957 and who needed at least 10 million gallons per day, has located on the Ohio River for lack of continuous water supply here.

It should be explained that even though we have adequate rainfalls during the year, we lack suitable soil structure of sufficient depth to impound these waters so that they may become uniformly available throughout the year. Because of these soil characteristics and also because of the changing soil structure brought about by removal of tree cover, we have greatly destroyed the soil profile to hold water and, therefore, most of the water escapes as free water during periods of heavy rain. This causes the necessity then for creating surface reservoirs through the construction of dams. But it is important to consider the vegetative cover in helping to reduce runoff by penetration into the soil profile and also to reduce erosion so that when reservoirs are built their useful life may be prolonged over what will be the useful life if siltation fills them prematurely.

I would like to cite one or two case studies made by research students qualified to make such studies. Mr. John Auten, who at one time was silverculturist for the Central States Forest Experiment Station of the U.S. Forest Service in the Department of Agriculture, reported in a periodical note, dated December 1, 1941, that the rate of absorption of water in the first inch of soil depth in an old depth in an old growth of woods was 50 times as fast as in adjacent field soil. At 3 inches of depth, the rate in old forest soil was 14 times that of field soil. This is because the surface pores are kept open and, with a litter of decaying humus, very fine soil particles are filtered out of the water so that the coarse pores remain permanently open and water can penetrate the soil profile.

In another study made by the Southeast Forest Experiment Station of Asheville, N.C. in the Coweeta Hydrologic Laboratory (which is also a Forest Service Research group in the U.S. Department of Agriculture) these results have been obtained: When a forest stand composed of 93 percent oak-hickory tupe and 7 percent cove hardwood was cut clean between January and March of 1941, there was an increase during the first year equivalent to a volume of 17 inches deep over the entire drainage basin.

It should also be stated that, in a forest area when water first strikes such a watershed, a significant part of it will be intercepted by the tree canopy. Part of this intercepted water will be evaporated; then another part will drip from the leaves and twigs; and the remainder will run off the stems and down the trunks to the ground. The amount of precipitation intercepted will vary directly in proportion to the density of the cover. Thus it may be said that a forest area may reduce the amount of water ultimately available after the precipitation has worked its way through the soil profile. This is true to some extent, but, at the same time, we must recognize that this same forest cover creates greater porosity in the soil profile to permit infiltration into the underground reservoirs from which the water is gradually released over a longer period and thus reducing the amount of free runoff during periods of heavy rainfall.

The point that I think needs to be emphasized is simply that the whole water control effort, besides building reservoirs and levees and cleaning stream channels to get rid of excessive surpluses, must also include improvement of land used so that the useful lives of reservoirs and levees will be lengthened by reducing siltation and also augmenting the capacity for storage in subsurface areas.

I, therefore, respectfully recommend that this phase be given consideration by your committee, and we do wish to thank you for the Federal financial assistance given to our area which has resulted in the completion of the Cagle Mills

Reservoir, the present construction of the Mansfield Reservoir and the initiation for construction of the Monroe Reservoir and other studies under way for additional reservoirs in both the East Fork and the West Fork of the White River in the Wabash.

Senator HART. Listed earlier, but I am not sure called, was Mead Johnson, president of the Mead Johnson Co., of Evansville.

Is Mr. Johnson here?

Ray Myers of Columbus, Ind.?

Mr. William P. Davis, Riverside Stock Farm, Columbus, Ind.?

Mr. DAVIS. Senator, I believe I am one of the farmers Mr. Baker was talking about. I am Mr. William Davis of Columbus.

Senator HART. Yes, Mr. Davis. Would you both come up, or is one speaking for the other?

STATEMENTS OF WILLIAM P. DAVIS, CHAIRMAN, BARTHOLOMEW COUNTY PLAN COMMISSION, COLUMBUS, IND., AND RAY MYERS, COLUMBUS, IND.

Mr. DAVIS. Senator Hart, I am William Davis, chairman of the Bartholomew County Plan Commission. That is a commission that was organized for the orderly development and growth of the Columbus community.

The Bartholomew County Plan Commission is interested in a flood control program for the East Fork of White River that will not only control the headwaters but also a program that will include the clearing and rechanneling along this East Fork in order that during heavy rainfall this river will remain within its banks.

To do one without the other would be solving only half the problem of flood control. Only by coordination of headwater control and channel arrangement will an exact answer be given to the problem of the flooding areas in the East Fork of the White River.

Bartholomew County, Ind., is an agricultural and manufacturing center in the State of Indiana, whose products are sold all over the world, with a network of local, State, and Federal highways surrounding the community.

Due to this above situation, the flooding program is not only costly to local agriculture, industry, and residents but also proves to be costly to city, county, State, and National Government because of reduced financial income. The most precious heritage we have today is land. Therefore, the manner in which it is protected today will determine our destiny for tomorrow.

The flooding problem in Bartholomew County is affecting our land utilization program from the standpoint of agriculture and manufacturing, which has a direct effect upon our national welfare as a whole.

Manufacturing is steadily becoming the backbone of our city, county, State, and national economy. Expansion is necessary. This necessity brings needs for land acquisition that is to be used in various ways.

My prepared text that I have submitted for your consideration will give proof of our need for land in our area and how this need is being taken from us due to flooding by the East Fork of the White River.

In the agricultural field, 22.4 percent of the total area of the county is composed of rich, fertile bottom lands. With the present flooding conditions prevailing, we are finding that sound and economical soil conservation practices are prohibited. This is an alarming factor

while the demand for our higher, more level, and natural drained land is growing and our supply of such land dwindling due to our manufacturing and population expansion.

Briefly, these are the facts.

As chairman of this planning commission and in their behalf I would like to suggest the following objections for your committee:

We would like for you to check your congressional records to determine whether or not the East Fork of the White River is a navigable inland stream.

No. 2, we would like to receive a complete flood survey report, showing what must be done to achieve flood control along the East Fork of the White River with the following agencies coordinating their efforts:

(1) The U.S. Army Corps of Engineers, (2) the U.S. Soil Conservation Service, and (3) the Indiana Flood Control Commission.

No. 3, we would like to have a study and propose a coordinated plan of coordination that will clear the way to definite understanding between city, county, State, and Federal Government. None of us are separated. We are all together in this huge project.

No. 4, give consideration to a long-range financial payment plan for such a constructive program with all levels of our Government coordinating.

And, No. 5, after such a project has become started, let us consider a maintenance plan in order to keep it.

I thank you.

Senator HART. I understand that you had an additional text, Mr. Davis.

Mr. DAVIS. Yes, sir.

Senator HART. That will be made a part of the record at this point.

(The information referred to follows:)

FLOOD CONTROL FOR EAST FORK WHITE RIVER

(By William P. Davis, chairman, Bartholomew County Plan Commission, Columbus, Ind.)

The East Fork of White River originates at Columbus, Ind. in Bartholomew County from the junction of a river and a creek. Namely, Driftwood River which starts at intersection of Flatrock Creek and Blue River and terminating at Columbus, and Flatrock Creek starting in Shelby County, Ind. and terminating at Columbus.

Southeast of this beginning point this river serves as a receptacle for two other creeks, namely; Hawcreek and Clifty which are used as outlets for the drainage from the city of Columbus and surrounding communities including land drainage as well as industrial, commercial, recreational, and domestic drainage.

In addition there are several smaller tributaries, along with county ditches emptying into the East Fork.

The accompanying soil survey map of Bartholomew County will verify the above location and usefulness of the East Fork of White River to Bartholomew County.

The East Fork of White River reaches its destination at Washington, Ind. by emptying into the West Fork of White River.

The Bartholomew County Planning Commission is interested in a flood control program for the East Fork of White River that will not only control the headwaters but also a program that will include the cleaning, channeling, and erection of levees along this east fork in order that during heavy rainfall this river will remain within its banks.

To do one without the other would be solving only half the problem of flood control. Only by coordination of headwater control and channel arrangement will the exact answer be given to the problem of the flooding areas along the East Fork of White River.

Bartholomew County, Ind. is an agricultural and manufacturing center in the State of Indiana, whose products are sold all over the world, with a network of local, State, and Federal highways surrounding the community.

Due to this above situation, the flooding problem is not only costly to local agriculture, industry, and residents but also proves to be costly to city, county, State, and National Governments because of reduced financial income.

The most precious heritage we have today is land. Therefore, the day-by-day management it receives will determine our destiny tomorrow.

The flooding problem in Bartholomew County is affecting our land utilization program from the standpoint of agriculture and manufacturing which has a direct effect upon our national welfare as a whole.

Manufacturing is steadily becoming the backbone of our city, county, State, and national economy. Expansion is necessary. This necessity brings needs for land acquisition—to be utilized for factory sites, parking facilities, shopping centers, thoroughfares (including local, State, and Federal), disposal and sewage plants, residential, and recreational areas all of which creates a drainage disposal back to the river. We have land in Bartholomew County that could be used for such expansion if the flooding problem from the East Fork of White River was controlled. At present such land is zoned as a flood area and is practically of no value to our community and national strength.

In the agricultural field, 22.4 percent of the total area of the county is composed of rich, fertile, bottom lands. With the present flooding conditions prevailing, sound and economical progressiveness in soil conservation practices are practically prohibited. This is an alarming factor while the demand for our higher, more level, and natural drained land is growing and our supply of such land dwindling due to our manufacturing and population expansion. Our farmers in Bartholomew County are not nearly so much interested in flood control aid as they are in flood control action.

These are the facts as the Bartholomew County Planning Commission analyze them. In behalf of that commission and as chairman, I would like to suggest the following objectives:

I. Check congressional records to determine whether or not the East Fork of White River is a navigable inland stream.

II. Complete a flood survey report showing what must be done to achieve flood control along the East Fork of White River with the following agencies coordinating their efforts:

1. U.S. Army Corps of Engineers.
2. U.S. Soil Conservation Service.
3. Indiana Flood Control Commission.

III. Study and propose a coordinated plan of legislation that will clear the way for definite understanding between city, county, State, and Federal Governments.

IV. Recommend a long-range financial payment plan for such a constructive program with all levels of government coordinating.

V. Consider a maintenance plan after project completion.

Senator HART. Mr. Myers, did you care to add anything?

Mr. MYERS. No, sir. I will stand with that.

Senator HART. Some of the specific recommendations that you make, Mr. Davis, are beyond the scope of the authorization given this select committee and do fall in the field of specific responsibility of some of the Federal agencies. I am sure that those agencies you have already contacted.

Others of your points, especially the one for the long-range planning, clearly is within the assignment given us.

And for the committee I thank you very much for your expression. We will keep it on the record but I am sure it is of interest only to those interested in the agricultural aspect. On the bottom land, what do you raise?

Mr. DAVIS. Well, normally, we were always able to have a complete, good, sound farm rotation, but it is getting, due to this erosion problem, and with this river getting out of bounds, that we are unable to come along with the small grain possibly for the importance of using as a nurse crop for our legumes to let stand for a year or two in order to build up our soil because it is impossible to do it. Therefore, it is going to be continuous corn, which is no good. That is not good farm management, to just raise one, strictly one crop.

Senator HART. Does Indiana raise much wheat at all?

Mr. DAVIS. No, not——

Mr. MYERS. Wheat, did you ask?

Senator HART. Wheat.

Mr. MYERS. That is one of the rotation crops.

Mr. DAVIS. It is one of the rotation crops.

Mr. MYERS. Corn, soybeans, and wheat.

Senator HART. Is there much wheat grown in Indiana as a cash crop?

Mr. DAVIS. No; not as much as the Wheat Belt or as compared to other parts of the United States.

Senator HART. I wonder if any of this Soft White Winter wheat was grown in Indiana.

Mr. DAVIS. No.

Senator HART. Again, thank you very much.

Mr. DAVIS. Thank you.

Senator HART. Thomas J. O'Connor, attorney at law, of Brookville, Ind.

STATEMENT OF THOMAS J. O'CONNOR, REPRESENTING THE WHITEWATER VALLEY FLOOD CONTROL ASSOCIATION

Mr. O'CONNOR. Senator, I am going to place this map here. I represent the Whitewater Valley Flood Control Association. We do not have a song about the Whitewater Valley River; therefore I brought the map for your perusal to show you that the Whitewater Valley is located in a watershed area which is approximately 30 miles from Cincinnati, 15 miles from Hamilton, Ohio, having a population of 67,000, and also is approximately 50 miles from Indianapolis.

I have a prepared statement. I will not read the statement out to you. I will have it put in the record, however.

Senator HART. It will appear in the record in full.

(The statement referred to follows:)

STATEMENT OF THOMAS J. O'CONNOR, CHAIRMAN, STEERING COMMITTEE, WHITEWATER VALLEY FLOOD CONTROL ASSOCIATION, BROOKVILLE, IND.

Gentlemen, we appear here today as representatives of the Whitewater Valley Flood Control Association, a body of businessmen and residents from the Whitewater River Valley organized for the purpose of gaining flood control and water resources for the Whitewater River Valley area and adjacent areas. We of the association are seeking to promote a flood control program and also we are seeking to promote other water conservation practices consistent with such a flood control program. We have been organized only recently and at this time are engaged in a comprehensive study of information we have gathered concerning flood damage in the Whitewater River Valley including the damages incurred by landowners and residents in the floods of 1898, 1907, 1913, 1929, 1937, and 1959. We have been unable to devote our time to a highly comprehensive

study of the effects of a proposed reservoir in the Brookville, Ind., area but we have found certain information which we believe should be brought to the attention of this select committee. The Whitewater River is located in the southeastern part of Indiana with its headwaters being located to the north of Richmond, Ind., and the river then runs through two forks from the area of Richmond through the counties of Union and Fayette and the county of Franklin to Brookville, Ind., and then on south through Dearborn County, Ind., and Hamilton County, Ohio, where it joins the Miami River at Cleves, Ohio, and thence flows a few miles to the Ohio River. The Whitewater Valley watershed comprises about 1½ million acres and the drainage area of the river consists of Wayne, Fayette, Franklin, Union, and Dearborn Counties in Indiana, and a part of Hamilton County, Ohio, as well as adjacent areas in other counties.

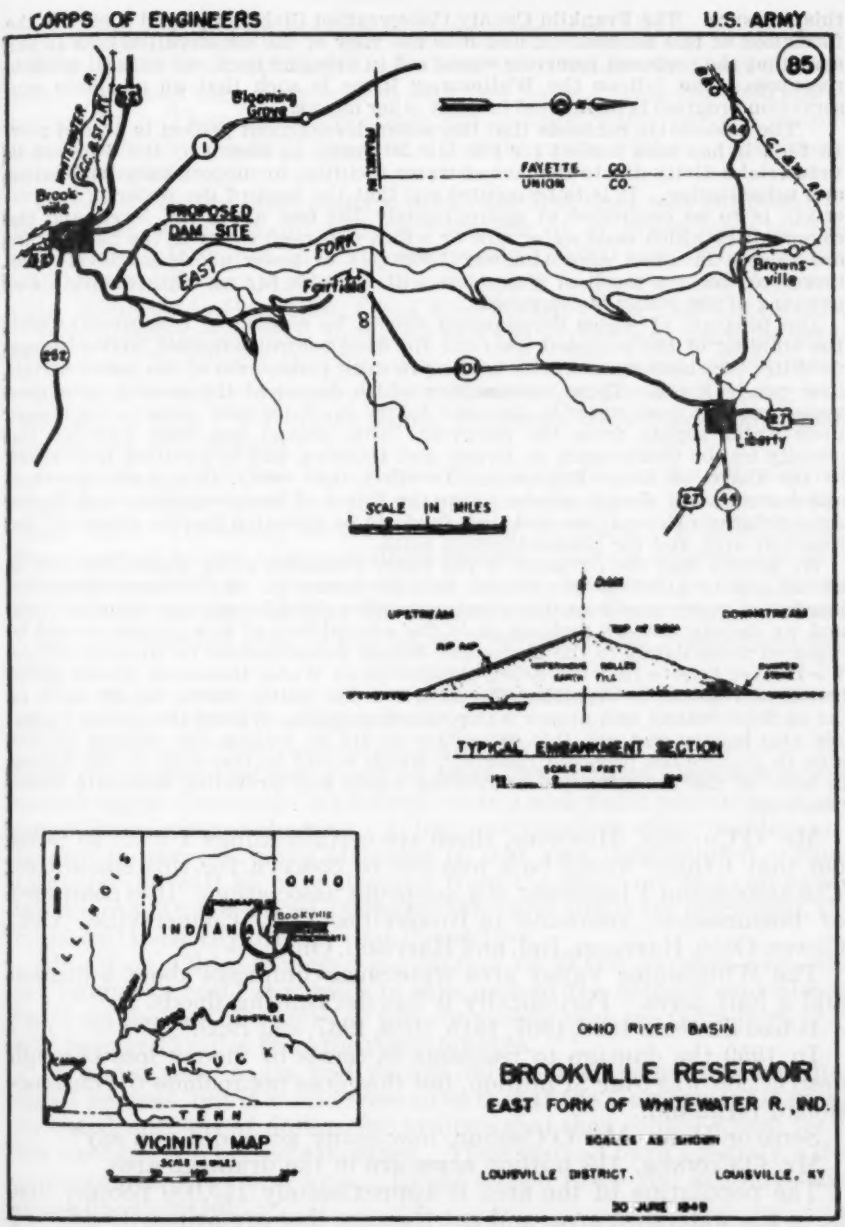
The population of the watershed area is approximately 140,000 people or more. The Whitewater River Valley is located between Indianapolis, Ind., to the northwest; Cincinnati, Ohio, to the southeast; and Dayton, Ohio, to the east; none of said large cities being located more than 50 miles from the site of a proposed dam at Brookville, Ind. All of these are large cities which do not at the present time have adequate water storage facilities to the knowledge of this association. Nor do these densely populated areas have adequate recreation facilities as far as waterways are concerned, except that a certain amount of recreational activities are carried on in the city of Cincinnati, Ohio, on the Ohio River.

The principal cities located directly in the watershed are Richmond, Connersville, Brookville, and Hagerstown, Ind., and Harrison, Ohio. It has been brought to the attention of the association that these cities are at this time affected by a lack of adequate water supply for normal growth purposes, which is a principal part of the reason for the restricted growth of these cities and has actually resulted in a loss of industry to these areas. The areas immediately adjacent to the Whitewater River Valley are prime defense areas in which the atomic plant of Fernald is located, and also many major defense industries.

In the year 1959 a heavy loss of property was incurred due to a disastrous flood in the watershed. Over $1 million property loss was incurred, with a result in loss of tax dollars to Federal and State Governments, and also the county and city governments sustained heavy loss of roads and bridges. It is estimated that from the 1913 flood to present, the county of Franklin, Ind., alone lost $173,000 in damages to bridges and roads which could have been avoided by adequate flood control; and this figure does not include damages to State and Federal highways or bridges.

Prior to 1913 a reservoir was proposed for the area adjacent to Brookville, and subsequent surveys were made by the Corps of Army Engineers which indicated a large dam and reservoir would provide partial control of the Whitewater River and that the reservoir was feasible. This reservoir would inundate 3,810 acres of land and would be approximately 17 miles long and 1 to 1½ miles wide. It would contain a capacity of 150,000 acre-feet of water. A copy of the summarized data and map of the area made by the Corps of Army Engineers is attached hereto and offered as evidence for your perusal.

Besides providing flood control, the reservoir formed by the dam would provide water, or could be used to provide water to all surrounding areas. The dam would be located approximately one-half mile north of the town of Brookville, Ind., with a population of over 3,000, which must rely for its source of water upon wells. The reservoir would be accessible to the city of Connersville, which would lie only 10 miles away and which also has a water problem. The reservoir would be located approximately 15 miles from Hamilton, Ohio, which has a population of 67,000 persons and which has reported a water problem. The reservoir would be located approximately 40 miles from the city of Cincinnati, Ohio, and the State of Ohio has estimated that the cities of Hamilton and Cincinnati will be one total metropolitan area within the next 10 to 20 years due to the growth of Cincinnati to the north. The cities above set forth are all in the same water table strata and which has been brought to the attention of the association that the water table has been declining within the past years. The association has not, however, obtained scientific data as to the exact lowering of the water table. However, it has been brought to the attention of the committee that more of the northern suburbs of Cincinnati are having to dig much deeper wells and have caused cities to the north to dig much deeper wells to get water. The industrialization of the area north of Cincinnati is taking place quite rapidly and these industries will use more water, thus further lowering the water table and thus increasing the need for more water resources to be collected and used for their purpose. It has also been brought to the attention



of the association since its formation that we of the surrounding community and even some of the farmers are believed to be considering the possibility of using the Brookville reservoir for a water supply if the reservoir is built.

As to national interest, this project is of importance, as it would achieve at least two results, they being the prevention of disastrous floods and also providing an adequate supply of water for future generations for the area in a 50-mile radius. Further, if the proposed reservoir is placed at Brookville, Ind., where it has been considered feasible for quite some time, it would provide water recreation facilities for quite a large area which does not at this time have such recreational facilities and cannot obtain them in any way other than

this measure. The Franklin County Conservation Club has played a part in the formation of this association, and it is the view of the conservation men in our area that the proposed reservoir would aid in bringing back our natural wildlife resources. The fall on the Whitewater River is such that an adequate conservation program is ineffectual in many other means.

The association contends that the water development project is needed now. In fact, it has been needed for the last 30 years, as shown by the decrease in industrial activity due to the lack of water facilities to support industrialization and urbanization. It is to be pointed out that the level of the water in the reservoir is to be controlled at approximately 750 feet above sea level, and the communities which need water now or which will need water in the near future are located in areas approximately 1,000 feet or lower above sea level; and, therefore, not too much of a problem will exist as far as transportation and pumping of the water is concerned.

The program of water development should be worked in concurrently with the building of the proposed reservoir for flood control purposes, and adequate facilities for those communities needing to avail themselves of the water at this time can be made. Those communities which do not at the present time need water but will need water in the near future can later take steps to implement their water supply from the reservoir. This project has been awarded top priority by the Commission on Rivers and Harbors, and is awaiting final study by the Corps of Army Engineers. To effect that study, this association and allied groups will shortly appear before the House of Representatives and Senate Appropriations Committees and seek funds to be allocated for the survey of the reservoir area and for preconstruction costs.

We believe that the purposes of the water resources select committee will be served and be aided by this project to a great extent. We believe that in the interest of water resources this select committee should study this area in detail, and we believe that its findings as to the advisability of this project should be reported immediately to the House and Senate Subcommittee on Appropriations. We further believe that the Select Committee on Water Resources should adopt pertinent resolutions reporting the need for the initial survey to be made as far as flood control and proper water resources in the Whitewater River Valley. We also believe and ask this committee to aid in helping the citizens of this area to acquire the proposed reservoir, which would be beneficial to the Nation in both of the objectives of controlling floods and providing adequate water resources.

Mr. O'CONNOR. However, there are certain things I wish to point out that I think would be a measure of concern for this committee. The association I represent is a nonprofit association. It is composed of businessmen, residents in Brookville, Ind., Connersville, Ind., Cleves, Ohio, Harrison, Ind. and Harrison, Ohio.

The Whitewater Valley area watershed comprises about a million and a half acres. Periodically it has devastating floods.

It had floods in 1898, 1907, 1913, 1929, 1937, and 1959.

In 1959 the damage to residents in terms of money loss through destruction was over $1 million, but that does not include the destruction of farmland.

Senator HART, Mr. O'Connor, how many acres did you say?

Mr. O'CONNOR. 1½ million acres are in the drainage area.

The population of the area is approximately 140,000 people, that is, in the watershed area, and not the ones that are primarily affected by flooding.

We appeared before this committee not for the purpose of flood control but for the purpose of pointing out that existing plans for flood control will work in very well with the purposes of this committee.

Cincinnati, Ohio, is located about 30 miles to the southeast. It has a great deal of population. It has many suburbs. A recent survey by the State of Ohio indicated that the city of Cincinnati and the

city of Hamilton, Ohio, which lies about 30 miles to the north, will within the next 10 to 20 years become one continuous metropolitan area. Already they have had to sink new wells. The water strata is giving out. They cannot possibly get enough water for the people that will be there within the next 10 or 20 years, without other measures being taken.

However, in the flood control area, the first dam was proposed at Brookville, which would form a reservoir of 17 miles long by 1½ miles wide. It would have approximately 150,000 acre-feet of water, which would be invaluable as a water supply to the cities of Connersville, Richmond, Hamilton, Ohio, Cincinnati, Ohio, and Brookville.

This reservoir was first proposed and the survey was made in 1913. The survey indicated that the dam was feasible, completely practicable, and would serve many water resource purposes. Nothing was done since then. Two other times resurveys were made, but again the project was shelved.

Now, we realize that in our area that the folks on the Ohio River need the various dams and the various locks as much as we need our small dam. However, we do believe that 50 years is a little bit too long to wait to get adequate flood control. We do believe that this committee could be of great service to our area and to the Nation if it would recommend that the Appropriations Committee go ahead with the projected plan to put up appropriations for resurvey of this area.

The water resource is not for just drinking and using the water itself alone. It is to promote industry.

We have had three industries leave the town of Brookville. We have two others that are going to leave the town of Harrison unless something is done about both flood control and water resources. Connersville is dying on the vine. It has a very serious water problem and no new industry is being attracted to that area because of it. Now, Connersville will lie only 10 miles from the reservoir and can easily tap in. As far as Federal appropriations and funds are concerned, the cities will normally provide that themselves.

Hamilton, Ohio, having a population of 67,000 persons, and who are having to build new wells to take care of the increase and also to build up the loss of water for just the people that are there now, they will be only 15 miles from the reservoir area.

It would seem to us, and we are only a small committee and just small persons, but it would seem to us that if the Government is going to spend millions of dollars for projects that they should where feasible combine two projects together. Here you can have adequate water resources for the entire area. In the second place you can have adequate flood control.

Now, I would like to also call attention to the committee that as my map shows Indianapolis lies about 50 miles away to the northeast. Indianapolis, Dayton, and Cincinnati form a triangle with the many millions of persons. It is a great defense area. New industries are coming in there all the time. There are no recreational facilities in that entire area. You have to go up to the northern lake district of Indiana down into Kentucky or into the Ohio River and the Ohio River is getting so with all the barges in there any more you cannot hardly get a motorboat in the thing. As far as recreation is concerned, it will help there and would help immensely.

I might point out in passing that we have, I think, more motorboats from Michigan coming through our town every year. Folks in Michigan come down to take advantage of some of the resources down in Kentucky. We believe that the Water Resources Select Committee will be served and aided by this project to a great extent. It shows what the people of the community have done. It shows what they are attempting to do to get the water resources problem taken care of.

The dam is going to be located approximately 2 miles above the confluence of the east fork of the Whitewater River and the west fork of the Whitewater River. Brookville is located in that same 2-mile area. It has a 3,000 population. The water supply for Brookville is completely inadequate. Already five wells had to be deepened in order to give the existing people in the town water.

To the east, the farmlands all need water. I have it on authority of many farmers to the east that they would put in truck gardens and provide Cincinnati with a ready food supply except for the fact that the water table is lowered so much that they cannot get the adequate water to put in the crops.

To the west, as I mentioned, Connersville has a problem with water.

We think that 30 years is too long to wait for flood control and we do believe that this area could be used as a water resources facility for the larger cities surrounding us if the Senate and House will allocate moneys for the survey, the construction of a dam. If you have three studies all showing feasibility of the dam and you are ordered to make the report, the people sort of feel that their Government is not quite doing it; all they are doing is asking them to make studies and restudies and restudies. When will this end? We specifically ask the committee to adopt a resolution in favor of the saving of the water resources in the Whitewater Valley or at least considering same and also that the Senate and House Appropriations Committees give further study to the allocation of money for the survey to aid in the reservoir.

I must also point out that although we call ourselves the Whitewater Valley Flood Control Association, we have tentative plans to go ahead with the work on the small watershed area, the small watershed project as far as the west fork of the river is concerned.

We believe that during the next 5 to 10 years both programs, flood control and water resources and small watershed, can be implemented and made to work together and prevent loss of floods and also it will aid the preservation of water supply.

It must be pointed out a lot of folks will say a dam can be built about anywhere along that or maybe the small watershed program would help without a big dam. The fall on the east fork of the Whitewater River averages 8 feet per mile. It is more like a gorge.

If you could see on the exhibit I have enclosed you can see that the lake formed by the proposed dam would be very narrow and very long. At one point in this area the fall on the east fork drops 17 feet in 1 mile. A small watershed program in that type of terrain will have no effect whatsoever.

However, on the west fork, which is the largest stream, but has a smaller fall, a small watershed project could be engineered, and the Corps of Army Engineers has indicated that that would be feasible.

We submit this statement and we would like more than just a mere study. We would like the committee to get behind the folks of the Whitewater River Valley and see if they cannot stir Congress to get something done.

Senator HART. Mr. O'Connor, I think it is fortunate for the folks of that valley that they have an aggressive and effective spokesman as witness yourself. I do not want you to leave under false impression. This select committee is not authorized nor indeed equipped to make recommendation with respect to specific projects to the standing committees or the Corps of Engineers.

Hopefully, though, as a conclusion of this committee, there will be less duplication and in some cases, I am sure, conflict between the activities of various Federal agencies presently assigned a responsibility. That, I hope, is one of the effects that it will be able to produce.

The disturbing news that boat traffic was moving from Michigan to Kentucky, I will make note on them. We like to think it runs the other way, of course.

Mr. O'CONNOR. Thank you, sir.

Senator HART. If it does get too crowded in the Cincinnati area there is much desirable and recreational opportunity in Michigan.

Mr. O'CONNOR. Thank you, sir.

Senator HART. Richard S. Robertson, president of the Jackson County Flood Control Association.

Is Mr. Robertson here? If he should come back, inform him that he may submit his statement.

Mr. SCHAD. We have that statement, it has been furnished for the record.

Senator HART. It will be made a part of the record.

(The statement referred to follows:)

STATEMENT OF RICHARD S. ROBERTSON, EWING, IND., PRESIDENT OF JACKSON COUNTY INDIANA FLOOD CONTROL ASSOCIATION

Since water is probably our most important natural resource it is related to the national interest to whatever extent necessary to preserve and control it.

Preservation of an adequate supply of good-quality water is essential to industry, agriculture and the welfare of the people and the role of water in the national defense area, at least, is definitely a governmental responsibility. The control of floods, and the damage therefrom, is generally an area, rather than a single State problem, and thus this phase of activity will usually require Federal action. Provision for recreation, fish and wildlife, etc. have a certain (but debatable) value and as such should not receive the governmental attention accorded supply and flood control. Local interests have proved their ability to handle the greater part of this phase.

Locally the flowable, or stream, water uses fall into the following categories: (1) Home uses for drinking, cleaning, sewage disposal, etc., (2) industrial uses for processing and manufacturing, (3) agricultural uses for livestock drinking water and irrigation, and (4) sanitation uses for dilution of human and industrial waste. Sufficient development to provide an adequate supply for these uses, and for the control of flooding, and flood damage, is essential. Although there is no present pressing need for supply development a need is likely to occur as the population increases and industry expands. Flood control, however, is presently much needed. Damage from floods is threatening life and property. Already much valuable agricultural land has been destroyed, or damaged, and if flooding is permitted to continue unchecked much more damage will occur. We believe a combined system of storage and channel improvement could alleviate this problem and we feel, further, this could be effected economically through cooperation between local interests and the several governmental agencies, local, State, and Federal. It is our opinion that this could be accomplished well within the presently accepted formula of cost to benefit ratios.

Should a situation develop wherein our interests could be affected by a specific project we respectfully request an opportunity to be heard in relation to it.

The CHAIRMAN. The president of the Indiana Farm Bureau or a spokesman for the bureau. Is Mr. Doud here?

Mr. ANSON S. THOMAS. I am representing Mr. Doud, president of the Indiana Farm Bureau. We do not care to submit a statement but we do put our OK on the one submitted by Mr. Kellam a while ago of the Flood Control Water Resource Commission. That bears out our views on the subject.

Senator HART. I am glad as the representative on the committee from the Agricultural Committee that the farm bureau is here.

R. Walter Krieger, president of the Jeffersonville Boat & Machine Co. of Jeffersonville, Ind.

STATEMENT OF R. WALTER KRIEGER, PRESIDENT, JEFFERSONVILLE BOAT & MACHINE CO.

Mr. KRIEGER. Senator Hart, it is a pleasure to be here today.

I will thank Senator Hartke in absentia for the invitation to testify before this committee.

My name is R. Walter Krieger. I am president of the Jeffersonville Boat & Machine Co., which is a shipbuilding company and a subsidiary of American Commercial Barge Line Co.. We are located in southern Indiana in Jeffersonville, Ind., on the Ohio River. The American Commercial Barge Line Co. is a common carrier barge line operating on the Mississippi and Ohio Rivers, and a number of the navigable tributary rivers.

I have a prepared statement which I would like to submit for the record and then in the interests of brevity just comment on it or summarize briefly.

Senator HART. Very well, sir. The statement will be made a part of the record.

(The statement referred to follows:)

STATEMENT OF R. WALTER KRIEGER, PRESIDENT, JEFFERSONVILLE BOAT & MACHINE CO.

My name is R. Walter Krieger. I am president of the Jeffersonville Boat & Machine Co., a subsidiary of American Commercial Barge Line Co., headquartered in Jeffersonville, Ind. I speak on behalf of Jeffboat and our parent common carrier barge line which operates on the Mississippi and Ohio Rivers and their navigable tributaries. My purpose is to try to emphasize, to this committee, the vital importance of maintaining and improving navigation facilities on the inland waterways and the necessity for preserving our growing bargeline industry.

I have been going through the printed testimony presented since October 1959 which your committee staff made available to me. I am struck, Mr. Chairman, by an important change in climate since last October in river development. Your continuing interest in this development makes possible the more effective use of necessary transportation benefiting business and the consumer.

The committee has generated sufficient interest and awareness in the development of water resources so that the "no-new-starts policy" of the Federal Government has apparently been abandoned. The President's budget, sent to the Congress last month, authorized new construction and planning as well as continuance of present projects. All of us who are trying to fight inflation by providing the most economical form of transportation available are aware of what you have done. New starts and new planning will enable the rivers to be used even more effectively to give to small business, farmers, industry, and the Government the lowest priced method of transportation yet devised—inland water barge transportation.

On the other hand, there has been a sharp change in the climate since last October in what river carriers face in Washington. It may well be, gentlemen, that the victories you have been winning for the heartland of America, its consumers, farmers, and businessmen will be endangered by the sharply changing political governmental attitudes toward the water carriers who are one of the many groups using the facilities which you have been examining and have helped to develop and encourage.

Last fall we were still hoping that your work would be aided by a constructive Commerce Department transportation report. Instead, we now read in the public press that a seemingly railroad-dominated antiwater report has been forwarded by the Commerce Department to the President. If the ratemaking sections of this report remain the same as the working papers which have been discussed in the press, then the railroads will be allowed even more leeway to practice destructive selective rate cutting. An effort will again be made, as was done earlier in the century, to deprive the public of economical water transportation and eventually substitute higher cost rail transportation. Instead of a constructive approach on the part of the Commerce Department, we will probably be faced this spring with an updated version of the Weeks' "Three Shall Nots Report."

This month there will be hearings in the House of Representatives and the Senate, on special problems of the coastal common carriers in connection with discriminatory rate cutting by railroads. It is our hope that the report of your committee will try to reverse this trend and point up the basic value of America's rivers and the fact that these rivers should be used to carry, in a most economical fashion, the commerce of our Nation.

The national welfare requires the coordination and best possible use of various forms of transportation. You undoubtedly know that the Supreme Court of the United States in January ruled on rail grain rates from river ports. The Court's decision forbids any "ratemaking device" which deprives shippers of any part of the economies resulting from the use of barge transportation. This action brings back memories of the long and hard battle which started in the 1930's when the barge lines began the fight to see to it that grain moved by barges was not penalized by higher rates on a subsequent rail movement. Although the paragraphs in the Interstate Commerce Act requiring coordination of rail and barge transportation seem perfectly understandable, clear and compelling, it has taken river carriers 25 years and three appearances before the Supreme Court to make them "stick." Any congressional committee or shipper doubts as to the unwillingness of the railroad industry to allow the shipper to enjoy the economy of water transportation will be dispelled by a study of that series of cases. As your committee contains in its membership representatives of the Interstate and Foreign Commerce Committee, the point should be made that the statute needs clarification and strengthening so that rail-barge coordination does not require another 25 years of litigation.

Our company, the American Commercial Barge Line, one of the oldest common carrier barge lines, recently surveyed the nature of our traffic at origin. We found, somewhat to our surprise, that 32 percent of our revenue traffic had a prior rail haul and 5 percent had a prior truck haul, in both instances from origins beyond our normal commercial switching district. At destination, 21 percent had a subsequent rail movement and 19 percent a subsequent truck movement beyond local commercial zones. The extent to which arrangements can be worked out between truck and rail lines to originate and distribute traffic which moves part way by water is a measure of the vast potential untapped opportunities for the barge industry to increase low cost service to business and the consumer. Clearly, this is of direct interest and concern to your committee as it plans for adequate water resources for the next 20 and 40 years.

We are truly grateful that you have decided to hold this extra hearing in a State which is known throughout the Nation for its economical river transportation.

In the past 20 years, and particularly since the end of World War II, industry has literally flocked to the banks of our navigable rivers, investing over $15 billion in new and expanded facilities. Communities and their people have thrived and grown. What brought about this tremendous new growth? Very simply, the reliable water supply and the availability of low-cost water transportation. Our own Ohio Valley has been widely referred to as "America's Ruhr" and actually exceeds the mighty Rhine in commerce. The need for inexpensive transportation of bulk commodities, both domestic and imported, will

be reflected by the continued growth of this industrial complex in the next 20 and 40 years.

There are exciting new developments underway—assuming we will be allowed to continue to serve the public as we have during recent years. I would like to cite a few examples:

1. Ore shipments

Iron ore from South America should become one of the top 10 commodities moved by barges in the United States in 1960. Up to this year, iron ore has not been transported in any appreciable quantities on the Mississippi-Ohio River systems. With the increasing use of South American ores and bulk handling facilities in the New Orleans-Baton Rouge areas, advance bookings have been placed for 1960 for the movement of the imported ores from gulf coast ports to mills in the St. Louis and Chicago areas and, to a more limited degree, to locations on the Ohio. Of particular interest for the Ohio River, in the future, are some of the long-term trends in supplying raw materials for American industry. Bauxite, iron ore, manganese ore, chrome ore, and copper are being increasingly developed in Central and South American countries. These commodities during the next 20 and 40 years are expected to increase the dependence of industries located in this area on river transportation. The initial reduction of these ores at the seacoast on the gulf and the transportation by barges of the refined ore up the Ohio, is expected to increase.

2. Increased shipping of farm products

This State and its neighboring States constitute the heartland of much of America's farm products. Grain and grain products are produced in this heartland and shipped to the border States of this country. The most economical way to do this is by river. As population continues to expand in the world at large, there will be a continuing demand for surplus American grain. The cheapest way to get the grain to seaports is by barge.

3. St. Lawrence Seaway

The St. Lawrence Seaway during the coming decades, which you are studying, is expected to increase industrial growth in mid-America. The inland waterways and the common carriers which serve them expect to participate in this growth of demand to serve even more consumers and businesses in the Nation.

4. Increase of coal usage

Coal consumption for electric power generation in this part of the country has been increasing tremendously. Giant powerplants, depending on the river for cooling water and for coal transportation, have been built and new plants are under construction. We know that the price of natural gas has been increasing. As the cost of gas increases, coal becomes more significant as an alternate fuel in industries in the Southern States. It is most probable that whole new markets for coal will be developed in the South which will require expanded barge movements.

5. Expanding chemical industry

The barge industry has been gratified by the requests for servicing substantial new tonnage that has become available for the vast growing chemical industry, including new plants in nearby West Virginia, Ohio, and Kentucky. The future of this important industry is plainly wide open, but we already know that some vital ingredients are caustic, chlorine, sulfur, and petroleum in various forms. The continued needs of this industry will demand increased barge services in the years ahead.

6. Technical developments

In your planning for river development in the years ahead, I am confident that you will take into consideration the technical developments and improvements in barge and towboat equipment which are already on the way, and some of which have not yet been put on the drawing boards. As president of one of our larger inland shipyards, and certainly one of the busiest on the Ohio River, I can report that we are constantly working to find new and more efficient ways of pushing sizable quantities of goods up and down the Nation's water highways. Towboats in the future will, without any doubt, have greater power, more efficient propulsion and more capacity to push bigger and more efficiently designed barge tows. I am happy to report to you that on the inland waterways there is increasing standardization of large sized barges and heavier loadings

which enable the makeup of more efficient tows. Considerable pioneering work is going on in arranging for better exchange of equipment between various river carriers. This will improve the flexibility of service which we can offer to the people in this area. Each year at Jeffboat, we have been building over 100 barges representing cargo capacity of 150,000 tons. Construction has been started on two very modern and efficient towboats of 6,500 horsepower each. I can assure you that the river transportation industry and the shipyards will keep pace technologically in constantly developing new equipment to move larger tows faster and more safely. With a new improved system of locks, and such powerful towboats with their improved navigation equipment such as radar, automatic pilot, depth finders, and perhaps other devices not even thought of yet, we can accomplish as much or more in the next 20 years as we have in the past.

Your committee has asked nearly every witness what they envision in their fields by the years 1980 and 2000. Our projection of river traffic is based on percentage figures including carrying capacity and gross freight revenue. If we are not harassed by hostile railroad influences and allowed to perform our basic function of providing good economical river transportation, our company hopes to be able to increase its carrying capacity 150 percent in 20 years and 250 percent in 40 years. As to gross revenue we would estimate an increase of 225 percent in 20 years and 400 percent in 40 years. If you chart these figures alongside the national gross product and the normal growth of our economy, you will see that these are really modest figures.

Before I close, I would like to share with you a few thoughts about the defense aspect of both the rivers and the common carriers which serve on them. In the last war my shipyard performed certain unexpected and important functions. Our company built and delivered to the Navy, via the Ohio and Mississippi Rivers, 12 small tankers, 8 subchasers, and 123 LST ships in record time, and this type of effort was repeated at a number of other river shipyards. The barge lines carried a huge share of vital commodities, including oil from the gulf coast to the East, safely out of the way of enemy submarines. In terms of national defense we know that the rivers can be used still more effectively in the future. Time does not permit me to spell out many details but the Senate Interior Committee, the House Armed Services Committee, and others have explored this area during the past couple of years.

In conclusion, we would recommend to this committee and the Congress that construction of the new system of 19 locks and dams on the Ohio River, a program now approximately 25 to 30 percent complete, be continued and pursued without delay. It is essential that moderization of the river be accomplished as rapidly as possible. I would like also to repeat a word of caution—so that these facilities may bring manyfold returns to the public—doing a job, whatever it may be, in the most efficient manner which can be devised is the American way and that is what has made our country strong and our people prosperous. Barge transportation on our rivers is the cheapest way of transporting large tonnages of commodities, principally in bulk. To legislate against such enterprise, or to allow it to be destroyed by overwhelming and unfair competition, would be to deprive the people of our Nation of one of the greatest benefits of our God-given natural resources.

Thank you.

Mr. KRIEGER. My particular purpose in making this statement today, as I say, is to emphasize two points, really.

One is the vital importance of maintaining and improving our navigation facilities on the inland waterways and, secondly, the necessity for preserving our growing bargeline industry. As I say, we are encouraged, on the one hand, by recent developments. That is, the President's budget submitted to Congress last month, which does call for a number of new starts on water projects.

On the other hand, we are a little discouraged, or I might say, we are apprehensive about the reports on the forthcoming transportation study by the Commerce Department. From all the reports it appears that this, in our opinion, will be railroad dominated and antiwater, to the effect that the ratemaking section of the report, it would appear,

will allow the railroads even more freedom to cut selectively and discriminatorily their rates which are competitive with the bargelines.

We think the only result in such a course will be to deprive the public of economical water transportation and we think the ultimate result would be to substitute higher cost rail transportation.

We hope that the report of this committee in some way will point up the value of America's rivers and try to reverse this trend, if it does become a trend. We think that the national welfare requires the coordination and best possible use of all the various forms of transportation.

And, as I say here on the third page of my statement, it appears now after a third Supreme Court decision in 3 years that the railroads may be forced to cooperate with us, and we think that actually they will benefit from it even though they may not realize it.

Senator HART. Decisions of the Court are slow in taking effect in certain regions and industries, apparently.

Mr. KRIEGER. Yes, sir; they seem to be.

We are making note here, which I am sure has been testified to previously and probably will be again to the committee, about the billions and billions of dollars that industry has invested on the inland waterways. We think the reasons are obvious. It is a matter of water supply and the availability of low cost water transportation.

We have all heard the Ohio Valley called America's Ruhr, and we think that is a very good name for it, and actually we think it exceeds the Ruhr in commerce.

We have reason to believe that the industrial complex on the Ohio River and the Mississippi River and other tributaries will continue to grow as much in the next 20 to 40 years as it has in the past.

I then go on to touch on some of the new products, new developments increasing traffic, such as the ores from Central and South America and the fact that iron ore is appearing and jumping as we predict it will jump to 1 of the top 10 commodities moved this year on the inland waterways due to imported ore coming into New Orleans and Baton Rouge and being transported by barge to steel mills in St. Louis, Chicago, and, to some degree, the Pittsburgh area.

We comment on the grain shipments, both domestic grain shipments as well as shipping grain to seaports for export.

The St. Lawrence Seaway we certainly expect to increase the industrial growth in mid-America, and it certainly makes connections with the barge lines, and we expect to participate in that business.

The coal usage, which has jumped tremendously, and we have every reason to believe it will grow tremendously, principally for power generation, and most of the coal for the powerplants on the Ohio River is moved by barge.

We touch on the chemical industry, which of course is just fabulous, and there is just more ingredients and commodities too numerous to mention moving by barge there.

We point out that the industry, the shipbuilding industry on the river and the barge lines are keeping pace by improving our equipment and building bigger towboats, larger, more efficient tows integrating our barges and standardizing them, exchanging them between various river carriers, all of which improves our service and flexibility of our service, and the economics of our service. Just blowing my

own horn a little bit, I cite, for example, that for the past several years, and we expect to continue, at Jeffersonville, in my shipyard, we are building 100 barges a year, representing a cargo-carrying capacity of 150,000 tons. We started construction on two new 6,500 horsepower towboats, with a new improved system of locks on the Ohio and such powerful towboats as I just mentioned, we will improve navigation equipment, radar, automatic pilots, and depth finders and some other devices that we may not have thought of yet. We feel the industry will accomplish as much in the next 20 years as we have in the past 20.

Our own company estimates from the barge line standpoint of our growth in the next 20 and 40 years, as that is by 1980 and the year 2,000 and we feel it is very conservative, is an increase in our carrying capacity, tonnage carrying capacity of 150 percent in the next 20 years and 250 percent in 40 years.

Similarly, we estimate that gross revenues from freight would increase 225 percent in 20 years and 400 percent in 40 years.

As I say again, we feel these are modest estimates, but we must repeat that these will only hold true and this growth only come about if we are not harassed by hostile railroad influences.

Finally, we touch briefly on the defense aspects of the inland waterways which I am sure the committee is somewhat familiar with, but there again another example is that our shipyard during the last war built and delivered to the Navy via the Ohio and Mississippi Rivers 12 small tankers, 8 subchasers, and 123 LST's, and we did do it, if we must say so ourselves, in record time, and this same thing was repeated at other river shipyards; and I know it was on the Great Lakes in Michigan.

At the same time, the barge lines performed a defense service in transporting, of course, huge tonnages of commodities up the Ohio, Mississippi, and Illinois Rivers, incidentally, safe from submarines. Our conclusions are that we strongly recommend the continued improvement of the navigation facilities on the inland waterways, in particular the new system of 19 locks and docks on the Ohio River, which has already been gone into to a great degree by the OBIA in their testimony, I think, and we do want to repeat again our word of caution, as we say, that is, that barge transportation is inherently the cheapest form that anyone has been able to devise yet of transporting large quantities of principally bulk materials. There is less steel required in the thing to carry it than there is in truck or railroad cars. There is less manpower and it is slow but for bulk commodities it is the most efficient way.

Our point is that to legislate against such an enterprise or to allow it to be destroyed by overwhelming, and we call the railroad overwhelming, and discriminatory competition, only results in depriving the people of one of the biggest benefits, greatest benefits of our inland waterways and our God-given system of rivers.

Thank you, sir.

Senator HART. Thank you very much.

I can ask a question that will not be charged to sectionalism, because Michigan does not produce coal, but I am struck at your optimism, and I take it, it is solidly based because part of your capital investment, your expected expansion must reflect a conviction of what

you say about future developments and the use of coal offer greater hope.

Mr. KRIEGER. Yes. As I say, the usage of coal for power purposes principally has grown tremendously on the Ohio River in the past 10 and 20 years. Of course the powerplants have had to keep up with industry and of course the plants that are being built on the Ohio and other tributaries, and then we have the plant at Memphis on the Mississippi River, are just tremendous.

Our company alone, through another of our subsidiaries, is towing 4 million—well, I think it is about 4,200,000 tons of coal a year to one single powerplant at Madison, Ind. That powerplant, incidentally, Senator Hart, supplies power to the atomic energy installation up in the Chitty Catty neighborhood. There are similar powerplants in the Paducah area and important powerplants built every day. New Albany just below Jeffersonville put in several 100,000 kilowatt powerplants into operation and the fuel is supplied again by barge.

Senator HART. I was struck at this phrase or clause that you used. "Most probable a whole new market for coal will be developed."

Mr. KRIEGER. Yes, we are looking toward the South there and principally again public utilities. Some of them over Florida way have been burning fuel oil for years, some natural gas, but there are signs now and some movement underway. There again we will have to fight with the railroads over the hauling of coal all the way down to New Orleans and across the gulf to the Tampa area.

Senator HART. I am completely blank on this subject, so I must ask this question so that I can evaluate really the significance of your phrase there.

Mr. KRIEGER. Certainly.

Senator HART. Is the use that you anticipate will develop in utility consumption of coal sufficiently great in terms of tonnage that it offers a reasonable shade of optimism in the coal regions? Is it this large new market you are talking about, or just——

Mr. KRIEGER. I think so, sir.

Without having the specific details, of course, I did not want to overemphasize the new market. Certainly, just the increase from year to year, decade to decade, increase in electric energy per capita, together with our increase in population, and so forth, adds up to it being a terrific rise in the curve on coal—as we see it, paralleling the increase in power consumption. That, plus these new markets which I would certainly hesitate to say would be tremendous new markets—I do not honestly think they will—but several new million tons a year to start with or something in that neighborhood will constitute a big market.

Senator HART. The two Senators from West Virginia, Senators Randolph and Byrd, have been effectively educating all of us who are not from coal regions as to the really acute economic problem that faces them. I was just wondering to what extent this might be.

Mr. KRIEGER. I think that is true, sir, and I would have to say that a good deal of the coal in some of these instances I have cited, comes from the regions where these powerplants are located—at Paducah, Ky., New Albany, Ind., Madison, Ind. Coal, of course, is being mined in southern Indiana, western Kentucky, by strip mining operations—

as a matter of fact, most of those mines are very modern and pride themselves on getting more tons of coal per man-hour than any other similar operation. Of course, when we go to eastern Kentucky and West Virginia, and so forth, we do run into a different situation manpowerwise.

I could not honestly comment on how much help this would be to that area.

Senator HART. Thank you very much. It was an interesting statement.

Mr. KRIEGER. Thank you, sir.

Senator HART. Thomas F. Mumford, the chairman of the Wabash Valley Bi-State Commission. Is Mr. Mumford or a spokesman for him present?

If not, and if he has a statement that he should like to make part of the record it will be received.

Mr. SCHAD. Senator Hartke received that statement for the record.

Senator HART. Is there a representative from the Indianapolis Power & Light Co.?

Mr. HUSTIS. Senator Hart, I am Ralph Hustis, speaking for Mr. Dan C. Hess of the Indianapolis Power & Light Co.

Senator HART. All right, sir.

STATEMENT OF RALPH HUSTIS, ON BEHALF OF DAN C. HESS, VICE PRESIDENT, INDIANAPOLIS POWER & LIGHT CO.

Mr. HUSTIS. We wish simply to submit a statement in behalf of the North Central Area Committee for Coordination of Power Supply.

This committee is composed of the investor-owned electric utilities in the Federal Power Commission Region 2 area which comprises a major portion of the Ohio River Basin.

This statement supplements a more detailed statement that was submitted to Senator Kerr earlier, simply adding some additional material. We want to file this statement for the record. We have no further comment to make.

Senator HART. Thank you very much. It will be made a part of the record.

(The statement referred to follows:)

STATEMENT BY THE NORTH CENTRAL AREA COMMITTEE FOR COORDINATION OF POWER SUPPLY

This statement is being submitted by the North Central Area Committee for Coordination of Power Supply, which includes all investor-owned electric utilities in the States of Indiana, Ohio, West Virginia, a major portion of Kentucky, southwest Michigan, western Pennsylvania, a portion of Maryland and Virginia, and the section of Tennessee around Kingsport.

This group of electric utilities has operated for many years on an interconnected basis, with resulting major benefits of coordination. The group is also interconnected with many electric utility systems in adjacent areas, including the Tennessee Valley Authority, and forms a part of a very large interconnected system serving parts of 29 States. The electric utilities represented by the North Central Area Committee, which generate over 99 percent of the electric power requirements in the area they serve, are as follows:

American Electric Power System.
The Cincinnati Gas & Electric Co.
The Cleveland Electric Illuminating Co.
Columbus & Southern Ohio Electric Co.

The Dayton Power & Light Co.
Duquesne Light Co.
Indianapolis Power & Light Co.
Kentucky Utilities Co.
Louisville Gas & Electric Co.
Northern Indiana Public Service Co.
Ohio Edison System.
Ohio Valley Electric Corp.
Public Service Co. of Indiana, Inc.
Southern Indiana Gas & Electric Co.
Toledo Edison Co.
West Penn Electric System.

In response to the request of Senator Kerr, chairman of the committee, an extensive and detailed report has already been submitted to the committee by the Edison Electric Institute on behalf of the investor-owned segment of the electric utility industry. We have thought it might be helpful, however, for this regional group to submit a brief statement on certain matters before the committee as they relate to the Ohio Basin. Our comments will be limited to two questions which we understand the committee is considering: (1) The water requirements of thermal electric stations and (2) hydroelectric development.

1. Water requirements of thermal electric stations

More than 99 percent of the electric power requirements of the north central area is generated by thermal powerplants. Our best estimates indicate that this percentage is more likely to be increased than decreased in the future. Most of these thermal plants are located on rivers of the Ohio Basin; some are located on other watersheds.

The only substantial water requirement of thermal powerplants is for condensing purposes. The water is pumped from the cooling source into the condensers and immediately returned to the source, with the only change being a slight rise in temperature which may cause some evaporation loss. It is of particular importance to note that, although large amounts of water are required for condensing purposes, the only amount of water "consumed" is through evaporation, and in all cases such evaporation losses are so small as to be negligible.

We estimate that the condensing water required by the electric utilities in the north central area would be about 11,000 billion gallons in 1970 and about 18,000 billion gallons by 1980, of which, as we have indicated, only a negligible amount would be actually consumed. About 82 percent of this total would come from the Ohio River watershed. The fact that the electric utilities in the area operate on an integrated basis tends to keep water requirements to a minimum, since interchanges within and between the interconnected systems keep the load on the most efficient units, which use the least condensing water.

2. Hydroelectric development

As we have indicated, more than 99 percent of the electric power requirements of the north central area, as defined in the opening paragraph of this statement, is supplied by thermal powerplants. Because of the availability of large reserves of coal in the area, we estimate that this primary reliance on thermal plants will continue.

Most of the presently economical hydroelectric potential of the area has already been developed. Such developments include, for example, Lake Lynn, in West Virginia; the Claytor project, on the New River, in Virginia; the projects at navigation dams on the Kanawha River, where the powerplants were built by Appalachian Power Co.; the Dix River project, in Kentucky; and the Ohio Falls plant, at Louisville.

Federal licenses have been applied for by two companies in the area, one to develop an 80,000-kilowatt plant in connection with the Markland Navigation Dam, on the Ohio River near Markland, Ind.; the other for a 440,000-kilowatt combined hydro and pumped-storage project on the Roanoke River in Virginia. Additional developments are contemplated for the future on the New River in Virginia. A preliminary permit has already been received by Southern Indiana Gas & Electric Co. in connection with the proposed navigation dam on the Ohio River at Newburgh, Ind.

If, in the future, additional hydroelectric developments—either straight hydroelectric projects, pumped-storage projects, or projects in connection with navigation dams—appear to be warranted, the utilities in the north central area stand ready, willing, and able to carry out any such projects.

With respect to the overall adequacy of power supply in the area, there is no question about its adequacy at the present time or in the foreseeable future. In 1959 the north central area had an annual peak of 18,528,000 kilowatts, which occurred in December. The available capacity to meet this peak at the time was 23,071,000 kilowatts, which left a margin of 24.5 percent. We estimate that by 1970 the peak load will reach about 34 million kilowatts and by 1980 some 68 million kilowatts. New capacity will be added to meet such peaks and to maintain ample margins of reserve.

Although the area includes extensive reserves of low-cost coal, the companies in this group have been actively engaged in nuclear power research and development (it is expected that by 1980 some 2 million kilowatts of nuclear capacity will have been installed in the area) and in research in other possible advances in the field of generating electric power, such as magneto-hydrodynamics, thermionic generation, and thermoelectric generation.

It should be emphasized that the foregoing—both as to present operations and future plans—is not based merely on building capacity to meet loads as they develop. The north central area group has for many years adopted the policy of aggressively developing uses of electric energy in all categories—the home, the farm, commerce, and industry. We intend to continue this aggressive development to encourage the widest possible use of electric power. We stand ready to provide the capacity to meet any and all requirements for electric power in this area, no matter how large the requirements may be, in the most efficient and economical way possible—whether by thermal, hydroelectric, atomic, or other techniques for generation that may be developed.

If the committee desires us to supply any further information, or if we can be of assistance to the committee in any other way, we shall of course be glad to do so.

PHILIP SPORN, *Chairman.*

Senator HART. I suppose the appropriate time to comment is here. I almost got told in talking about coal and use by utilities of coal. But the committee has been given a very real assist by the utility industry through the Edison Electric Institute.

Mr. HUSTIS. Yes.

Senator HART. The institute has prepared and made available to us a very discerning study, and I think the work of the committee will be helped materially by the institute.

Mr. HUSTIS. Senator, this statement is prepared by the same people who worked on the EEI report and supplements the EEI report.

Senator HART. I am sure it is a good one. That one was excellent.

Mr. HUSTIS. Yes.

Senator HART. Thank you very much.

Mr. HUSTIS. Thank you.

Senator HART. Robert Heider, president of the Indiana Sewage & Industrial Wastes Association.

STATEMENT OF ROBERT W. HEIDER, PRESIDENT, INDIANA SEWAGE & INDUSTRIAL WASTES ASSOCIATION

Mr. HEIDER. Senator Hart, my name is Robert W. Heider. At present I am president of the Indiana Sewage & Industrial Wastes Association.

I have a very brief statement for the association.

I might mention that my occupation is sanitary engineer, director of the Division of Sanitary Engineering of the Indiana State Board of Health.

Senator HART. Does the statement before you explain the nature of the association? The name I am not sure explains to me what the association is made up of.

Mr. HEIDER. Our Indiana Sewage & Industrial Wastes Association is one of the State affiliates of a national or international group, rather. I should mention that that federation formerly was known as the Federation of Sewage & Industrial Wastes Association. But as of the first of the year the name has been changed to Water Pollution Control Federation.

On behalf of the Indiana Sewage & Industrial Wastes Association, we are pleased to submit the attached resolution, adopted by the association on November 19, 1959. This resolution briefly explains the vital concern of our industry over the development and preservation of our natural water resources.

The waste treatment industry is an important segment of the water resources picture.

(1) There are at present some 150 municipal sewage treatment plants in operation or under construction in Indiana, serving 90 percent of the sewered population.

(2) The existing municipal and industrial treatment plants are processing approximately 1 billion gallons per day of waste water, and returning the treated water to the water courses for further use.

(3) An additional 125 small municipalities, of which more than 100 have populations under 2,500 and all except 3 under 5,000, do not now have sewage treatment works. They constitute the 10 percent of the sewered population not served by treatment plants.

(4) Construction of plants for the 125 municipalities above mentioned, additions as necessary to the existing 150 municipal plants, plus facilities for new developments, is a major requirement.

In closing, may we bring to your attention one of the most critical factors affecting the future cost of constructing and operating sewage works. Sewage treatment plant designs are based partly on the availability of dilution water in the receiving stream under low flow conditions. Without low flow regulation of these streams, our present concepts of sewage treatment may require radical revision to meet future needs, probably accompanied by significantly greater costs for both installation and operation.

Mr. Poole touched on that subject earlier in his statement.

We wish to thank you for the opportunity to appear before this committee.

Senator HART. Thanks for coming in and giving us the expersion of a clear summary of the people engaged daily in one aspect of the business.

The resolution, which will also be made a part of the record at this point, I have not had a chance to read it in full. Before you leave, if you would pause a minute and let me complete it.

(The resolution referred to follows:)

RESOLUTION

Whereas the demand for water is growing constantly throughout the United States brought about by an ever-increasing population and expanding economic activity; and

Whereas waste of water and inefficient use, or methods of use, must be minimized or prohibited; and

Whereas water resources must be utilized most beneficially, consistent with practical considerations; and

Whereas many groups and associations are organized to further their rights in the field of water resources; and

Whereas the use of dilution water for the proper disposal of treated wastes is a legitimate and beneficial use of water and this fact must be brought to the attention of all concerned: Now, therefore, be it

Resolved, That the Indiana Sewage & Industrial Wastes Association in meeting assembled at Indianapolis, Ind., on November 19, 1959, does hereby request the Federation of Sewage & Industrial Wastes Associations to establish a committee to collect, study, and disseminate information on water resources pertaining to the waste treatment industry and to otherwise further the interests of the waste treatment industry in the field of water resources.

Senator HART. It does say what I thought it did. Let me add then if it would be possible for you or the federation, as you complete or assemble information which you recommend be assembled in this resolution, if you would remember this committee and let us have copies of such materials as you do develop, it might very well be helpful to us.

Mr. HEIDER. We certainly will.

Senator HART. Thank you.

Mr. HEIDER. I thank you.

Senator HART. R. Dean Hall, manager, Peru Chamber of Commerce.

Howard Mendenhall, of Benton, Ill.

Mr. Mendenhall, what is that badge you are wearing? Is it some sort of political affiliation?

Mr. MENDENHALL. It is Heartland, U.S.A. It has no political affiliation. It says, "Heartland, U.S.A."

STATEMENT OF HOWARD MENDENHALL, BENTON, ILL., SPEAKING FOR THE REND LAKE ASSOCIATION

Mr. MENDENHALL. Actually, we consider the central portion of the United States the breadbasket, such as the heartland in Germany and other areas, being the heartland of the U.S.A.—but no Nazi implications, please.

The area that I represent—well, I am Howard Mendenhall, from Benton in the south central portion of Illinois. On page 9 there is a little map which gives you some idea of where it might be. The area is in the middle of the State, and the southern portion is bounded by rivers. We are an island, but there are problems—water problems living on an island, nevertheless.

In order to save time, I will keep to my statement. I am speaking for the Rend Lake Association, which is a voluntary——

Senator HART. Let me interrupt you there. That concept you mentioned, living on an island——

Mr. MENDENHALL. Surely.

Senator HART. I look on the map and I see what you mean. Although you are not bounded by rivers, rivers are within reach of you. This is a concept, if all of us would try to develop, we would discover that most of us do live on islands in the same sense, and it might increase our awareness of the water problem.

Mr. MENDENHALL. If I had been a better artist there would have been another page in this thing that would have had us on the peak of a ridgepole of a house. We are exactly 90 miles from the Wabash River and about 90 miles from the Mississippi River and 90 miles from

the Ohio River. It is a pretty big distance that separates us, so that we can even, though we have been in the past forced to haul water by railroad tank car from the Ohio River because of our water shortages, we are in effect living on the ridgepole.

Our northern county where Mount Vernon is located actually drains into three different subwatersheds. One stream emptying into the Wabash, one stream leading down to the lower Mississippi and one leading into the upper part of the Mississippi. We are at the peak of the roof. If you take a gable type roof and there is another type roof similar to it, we are the ridgepole and the water all runs down. We get it momentarily. Our problem is to catch and hold it. We have problems. We have a waterproof roof that prevents us from holding it.

We have recognized this problem, and the citizens group, the Rend Lake Association was formed as a result of a drought in 1954. It is about as grassroots an organization as you can get. Our president happens to be a member of the soil conservation district board of supervisors and prior to that, taking grassroots literally, and a little deeper, he spent most of his life in the coal mine. Most members of the association are either coal miners or farmers.

So in speaking for them I am speaking for the grassroots.

I made a presentation to this committee in Des Moines at which time I suggested the solution to our water problem was through the enactment of a bill introduced by Congressman Kenneth J. Gray, a Democrat from Illinois, known as the National Water Resources Act, H.R. 6396.

Now, today I would like to still recommend that bill for consideration to the committee because it contains a number of items, but I would like to point out how our problems in the Big Muddy River Watershed in southern Illinois are very similar to those in Ohio, Indiana, Illinois, and Missouri, because we all have a large clay belt which reaches across the State.

If we had all day I would read the rest of the statement, but I have expanded the idea of the clay belt.

Senator HART. You continue on with the statment. It will be helpful.

Mr. MENDENHALL. With the clay belt concept?

Senator HART. It will be helpful.

Mr. MENDENHALL. The background for our problems begins with this clay-pan soil that we have varying in width. This clay-pan belt covers a multistate area, and lies just south of the glaciated prairie lands. It was laid down between the unglaciated hills by the melt waters. Obstructions which stopped the water, formed glacial lakes where clay settled out in layers of from several feet to a hundred or more feet thick. The larger and unobstructed rivers laid down sand and gravel bars which are tremendous aquifers and sources of abundant underground water. But, along the smaller less forceful streams and in the valleys covered by lakes, the fine clay was laid down with little or no sand and gravel base. Here in many of these "tin-roof" claypan valleys, wells yield very little. Water supply problems must be solved by runoff cisterns or surface reservoirs.

Fortunately, the average rainfall for most of these areas is relatively high, ranging from 35 to 42 inches per year and is usually

fairly evenly distributed. However, these are frequent variations from the average. For example in our Big Muddy River Valley, we had only 25 inches of rain in 1953. In 1944, we had 65 inches of rain, a variance equal to our yearly average of 40 inches. These extremes occur frequently enough to pose serious water supply problems. Intense local rainfall variations also cause distress. In the calendar year 1959, our intensive rain gage network, showed an 8 inch variation in total rainfall in a 10-mile distance. Two towns 10 miles apart had 8 inches difference in total amount of rain. Yet our total rain this past year was within a few hundredths of an inch of the 40-year average rainfall for the area.

We had an extreme local drought, also, during June, July and August with less than an inch of rain in each of those months and yet terminated by a 10-inch rain that came in less than 12 hours' time. This all ran off, unfortunately.

The low insoak of these clay soils promotes rapid runoff. Our Big Muddy River recorded a discharge of 28,200 cubic feet per second in 1946 against average yearly flow of 600 cubic feet per second. Four days before this all time high, there was a flow of only 5 cubic feet of water in this stream. Twenty days after the all-time high, the water runoff and the flow was down to 43 cubic feet of water per second. Yet the stream has an average flow of 600.

These local and seasonal rainfall variations do much to explain why our larger towns and cities in the Muddy River basin, and I would insert parenthetically in much of the claypan area across these four States, have two or three separate surface water reservoirs, and our farmers who are dependent on rainwater cisterns, are chronically short of water. Quoting from the "15 Years Ago Today" column of the Mount Vernon newspaper of just last week, we read.

The L. & N. Railroad gave notice that due to heavy war time traffic: the maximum amounts of water that can be hauled into Mount Vernon from the Ohio River (90 miles away) would amount to 550,000 gallons a day. On January 22, 1945, the daily consumption was 871,255 gallons. The reservoirs are nearly dry.

The only thing that saved Mount Vernon 9 years later from the same type of disaster in the 1953–1954 drought was the shutdown of their major water-using industry. This was despite the fact that they had made heavy local expenditures to try and correct the situation following the 1945 crisis.

May I add that the city of Mount Vernon has the highest water rates of any town in the State of Illinois.

In 1954, Benton, Christopher, West Frankfort, and many other towns in the Illinois section of the claypan area were hauling water and putting in emergency pipelines.

These extremes of rainfall and flow, and the intense local variations of rainfall plus the absence of usable ground water point to one thing that must be done in these claypan areas if a reasonably dense population level is to be sustained without frequent water disasters.

If we are going to maintain a large enough population to successfully exploit the coal, oil, forest, and other resources in these areas, larger water reservoirs dependent on larger watersheds must be developed. But many of these present communities cannot locally finance an adequate structure by themselves. Therefore, the creation of joint supplies providing for several towns is indicated. All four of our

midwestern claypan States have adequate conservancy district laws to permit this type of joint financing. Sometimes, however, the project that is needed to do the job adequately is too big to be done entirely by this local entity. Avenues should be established whereby Federal cooperation with these groups is encouraged. For example, in the upper Big Muddy River watershed, there exists an ideal reservoir site that could supply water to some 31 communities that lie within 15 miles of it. Collectively, through their conservancy district, they can raise by bonding themselves to the limit, nearly $6 million. But the price tag on developing their Rend Lake site to the full extent of its potentials is $25 million.

The 69,000 people living in these 31 communities in 4 counties barely have enough supply source to meet their present need for 9 million gallons of water a day. Modest population increases will call for 11 million gallons by 1970, 17 million by 1980, and 25 million gallons a day by the year 2000. This assumes no drastic increases in per capita consumption or abnormal population increase. Since the details on these figures are incorporated in my previous testimony, I won't elaborate here, except to say the domestic water is only one of the many water needs of the area. Water for mine head electricity from the areas' tremendous coal reserves, the need for industrial water to create jobs for the areas' 10,000 unemployed, and the tremendous recreation and wildlife potential of this site, are not considered as valid benefits in today's criteria for water development.

This conservancy district has taken the initiative to try and find a solution for these 31 communities' water problems, but as cited in Des Moines, they have run into the stone wall of fiscal impossibility. The State will give no substantial help until assured of Federal help. All the Federal agencies decline since they can't or won't, for various reasons, work on such a varied multipurpose project.

Due to the nature of the site, it would be economically and morally unsound to develop this site to less than its fullest potential. Yet, the complete development of the site could bring about many State and National benefits.

Unfortunately, most of our States, including Illinois, have been dominated by the Federal Water Development Agency programs for so long, that with the exception of California who jumped off the deep end last year, they will move nowhere on a big water project without "dear Uncle's" guidance. "Dear Uncle" has had such complete dominance in this field for so long that he resembles the eccentric millionaire, who with a patched and ragged cloak stands over and directs in detail every job, no matter how big or small, often ignoring the wishes or needs of the urchins he condescends to help.

Maybe this picture is a little harsh, but certainly no one can deny that "dear Uncle" has gone about his water development chore with a very patched and ragged set of rules and policy. Nor, can many deny that sometimes his eccentric ways of doing things seem very arbitrary. Sometimes, unduly restrictive, and sometimes unduly nonrestrictive.

There are many projects that the old fellow built, especially during the depression, that he wouldn't think of building today, no matter how sound they might have proven. One of these was on the Crab Orchard Creek, a tributary of the Big Muddy River some 40 miles south of the proposed Rend Lake. This 7,000-acre "boondoogle" as it was called in the late 1930's, would never meet today's cost-benefit

standards. Yet, just the Federal income tax alone on the 4,000-plus jobs the lake has been directly responsible for creating would repay the entire cost of the lake in 2 years' time.

With a million and a quarter visitors each year, valued at a dollar each, as suggested in Senator Kerr's formula, the entire cost of the lake could be paid for the second time in 2 years' time. The dollar value of the flood damage, that it was supposedly justified with in the first place, is so small that it could not be expected to pay the interest on the investment, let alone the principal.

This leads to an examination of the "patchwork quilt" of laws, rules, interpretations, customs, and policies that our various Federal legislative committees and Federal agencies have to work with. As I see it, the whole purpose of this committee is to either patch up this old torn "quilt" or to make a new one. Thus, here follow some specific suggestions of "patches" that I think need fixing or some "threads" that should be woven into the new "blanket."

Since I am most familiar with the Big Muddy River watershed and since it serves as an example of multiproblem area in water development, I'll use it as an example to point out neglected facets of our present water program that I feel need correction. Since most of the testimony I heard or read deals in generalities, I would like to present something specific.

1. Reservoir site protection

In the upper Big Muddy River, the Rend Lake area is one of the best undeveloped reservoir sites in the Midwest. It is seriously threatened with invasion by an interstate highway and by a new railway spur. I suggest a bill that would keep Federal agencies from participating in the destruction of major reservoir sites by making it mandatory that no Federal funds may be spent on a project, nor Federal regulatory agencies permit construction within the affected area of a feasible reservoir site where active planning is in progress unless adequate provisions are made for protection of the economic integrity of the site.

2. Flood plain invasion

So much of the flood control work done by the Federal Government and others has been rendered ineffective by promiscuous invasions of our natural river flood plains that it is mandatory that a national policy against this practice be adopted.

No Federal funds or approved by Federal regulatory agencies should be granted projects located within flood plain areas. The definition of these areas on all streams upon which Federal flood control moneys have been expended should be accelerated, the hazards highly publicized and the information made readily available to all Federal, State, and local agencies having need for it.

A prime example of such a case is the current plan for the county of St. Louis, to build a major airport on an island in the Missouri River.

3. Recognition of all valid benefits to water development projects

(*a*) Recreation has long been ignored as an official benefit to reservoir construction: Time after time it has proved to be the largest dollar-and-cent benefit that has accrued from many projects. Failure to recognize this benefit has caused undue frustration and in some cases immoral benefit claims for flood control or navigation. Competent recreation authorities have claimed Rend Lake's entire cost could be justified in 25 years by recreation values alone.

(*b*) Guaranteed low flows: All major water storage projects on which Federal funds are expended should make an honest effort to provide for guaranteed low flows. These values should be recognized as legitimate benefits allowable in determining the project feasibility. The Federal Government should participate with local or State projects in the extra costs of guaranteeing low

flows when they are on or will affect interstate streams. The maximum amount of low flow should be maintained that is practical for the situation.

(*c*) Full site development: Countless reservoir sites have been developed to only a fraction of their potential usefulness, due primarily to the financial inadequacies of the developing agency. Our population pressures are such that we can no longer afford the luxury of continuing waste of our dwindling supply of economic reservoir sites on single purpose uses. Rend Lake offers a perfect example of the high social and economic costs of partial development. The Federal Government present attitude demands complete authority on all water projects. A way should be found in which the Federal Government would participate with the local or State government to encourage utilization of the full potentials of a site, for example, say to the city building a new water reservoir or the State conservation department building a new fishing lake. If you will build this dam "X" feet higher to store flood and low-flow water, we will pay the difference in cost. Hundreds of millions of dollars worth of flood control could be obtained in local and State projects for a fraction of the present cost to the Federal Government. Local integrity and initiative would be maintained and many of our scarce reservoir sites more fully used.

(*d*) Wildlife benefits: Many reservoirs could be so designed as to provide tremendous benefits for wildlife with a little extra planning and often at very little extra cost. In Rend Lake, for example, there are three shallow arms that would make superb waterfowl and fish management areas. On one, all that is needed is a simple control structure at a highway fill. Incidentally, it would be crossing at an interstate highway if we can even keep the interstate highway out of the lake in the first place. The Federal and State wildlife agencies' participation in the extra costs of these improvements could gain tremendous areas for fish and wildlife management purposes at low cost.

4. Upstream watershed protection and adequate public access

This should be assured on all projects on which Federal moneys are to be expended.

There is now before Congress a bill known as H.R. 6396, the national water resources bill, which incorporates most of these recommended elements. Senator Kerr has a bill that would recognize recreation values. There are other bills that would help correct some of the above deficiencies.

I hope sincerely that the committee is successful in drafting and getting passed a sound, well-balanced set of water laws and policies.

Your sound approach thus far presages success.

I see you have changed horses in the middle of the stream.

I want to thank you for coming in at the tail end and picking up the pieces.

The CHAIRMAN. Thank you, Mr. Mendenhall. I was going rapidly through part of your statement here. I would like to ask you this question: Has the group with which you are associated made a study that would enable you to give what you would regard as a meritorious evaluation of the recreational benefits of conservation projects?

Mr. MENDENHALL. Well, we have studied our own project in great detail on recreation. We have a Recreation Advisory Committee and we have considered the bill which you have introduced. The only criticism our Recreation Advisory Committee, the head of which is Dr. William Freberg—incidentally, the first man to earn a Ph. D. in the field of recreation—and he is head of the recreation department at Southern Illinois University. On our committee also are representatives of the State parks division and several consulting recreation directors and city recreation directors as well as lay persons. They have studied this recreation value and I quote Dr. Freberg when he said, "Our entire $20 million lake project would be repaid in 25 years with recreational values alone."

The CHAIRMAN. Is that in this statement?

Mr. MENDENHALL. That is in the statement. I did not cite the source of the quotation but that is where it came from.

The CHAIRMAN. We are going to have hearings in the next few weeks on the bill to which you refer. We have finally secured indica-

tion of some acceptance or semblance of acquiescence or maybe support from the administration for some kind of a bill. We would be grateful to you and your group if Dr. Freberg—did you say?

Mr. MENDENHALL. Yes, sir.

The CHAIRMAN. Would submit to us for the record here and for the use of the other committee, the Public Works Committee, when it has hearings on that bill, your considered judgment of the specifications of the economic assets of the recreational phases and, to the extent that you can do so, the expression of it in terms of cents or dollars per visitor-day.

Mr. MENDENHALL. We have a good bit of material on that subject, and I would be most happy to assemble it and call my committee together and evaluate it and prepare it and submit it to you.

The CHAIRMAN. We would be very grateful to you. There is not any question that recreation is developing into one of the major industries in the country. I think we will live to see it one of the three or four greatest industries in the country. It is associated not only with the commercial health of the Nation but with the health of the people of the country. There is more and more recognition of the necessity for recreational opportunities in the life of any normal human being, and as we do expand our population and use more and more of our areas in urban and metropolitan and industrial uses the necessity for available recreational spots to centers of population is going to be more dramatically clear. If we do not move now to meet that challenge we will not be here when they will be expressing their regrets that we did not have more sense than we evidenced we have, but we will leave the kind of situation that our grandchildren will not be very proud that we had anything to do with it.

So I am grateful to you for this development and for the further information you will give us.

Mr. MENDENHALL. Thank you.

Senator HARTKE. I want to say something, Senator Kerr, concerning this southern Illinois group. They are not from Indiana so this can be taken from really an objective viewpoint. I was there—how long ago has it been?

Mr. MENDENHALL. In December, or the middle of December.

Senator HARTKE. December.

Mr. MENDENHALL. Just before Christmas.

Senator HARTKE. They have one of the most resourceful groups of people down there in the overall field of community development along lines which you are talking about that I have ever known. And in the field of recreation, I think they have developed almost a landmark attitude in development which I think possibly will be of material help to you and your committee.

Mr. MENDENHALL. We have a citizens' council composed of citizen groups from all over southern Illinois, known as the recreation council. It was a coordinating council but we dropped that long word and a number of other groups organized on a county basis or multi-county basis for the purpose of promoting recreation.

The CHAIRMAN. Who built your Rend Lake?

Mr. MENDENHALL. It has not been built, sir. We need the $25 million. All we can raise is $6 million.

The CHAIRMAN. Tell me this——

Mr. MENDENHALL. It is in the early planning stages.

The CHAIRMAN. Which agency of government is doing anything with it?

Mr. MENDENHALL. So far none.

The CHAIRMAN. None?

Mr. MENDENHALL. We have tried in vain. We have knocked on all doors and got nowhere. Actually, the program is this: It does not qualify as a flood control project. The land that is inundated downstream is of low value and does not build up more than a few hundred thousand dollars' flood damage a year. There is a potential of navigation.

The CHAIRMAN. Is there any potential of municipal water use?

Mr. MENDENHALL. Yes, there is, and our municipalities are more than willing to go as far as they possible can in their legal bonded indebtedness through the conservancy district.

The CHAIRMAN. You are familiar with title III of the Flood Control Act of 1958, are you not?

Mr. MENDENHALL. Yes, sir. That will help the navigation of the Big Muddy River.

The CHAIRMAN. That is not associated with navigation.

Mr. MENDENHALL. I know, sir. That has to do with the Corps of Engineers having the authority to grant the value of——

The CHAIRMAN. Recognition of the value of storage space.

Mr. MENDENHALL. For water supply.

The CHAIRMAN. For present and future water supply requirements, and it can be done on a basis that does not require your bonding yourself, but merely having an organization that is in position to make an agreement to use the water that will be in that storage space.

Mr. MENDENHALL. That particular thing was the most encouraging thing that has happened in many years. Your bill would also——

The CHAIRMAN. We hope—you see, I was one of the authors of title III of the 1958 act. My hope is that our recreation evaluation bill will be title III of the Flood Control Act of 1960.

Mr. MENDENHALL. If we get to title III we will make it and get over the hump on it.

The CHAIRMAN. You walked right in the open door of my heart with your statement and if you will come down to Washington and see if maybe together we cannot find some basis for development of your business.

Mr. MENDENHALL. I would be most happy to do so, sir.

Senator HARTKE. I think this is a wonderful thing for you. Senator Kerr is extremely resourceful. I think he understands what he is talking about when he wrote this. I think you know what you are talking about when you speak about development of this aspect.

Senator Kerr, this is the point. These people have the ability to not only dream but to dream realistically. You know some people just dream. These people know where they are going if you can only get somebody to listen to them.

Mr. MENDENHALL. And we are most grateful that you have listened to us.

The CHAIRMAN. OK, sir.

Mr. MENDENHALL. I will accept your kind invitation to visit you in Washington in the very near future.

The CHAIRMAN. We will be glad to see you.

Mr. MENDENHALL. Thank you.

The CHAIRMAN. The following statement has been handed to me for inclusion in the record at this point.

(The statement follows:)

STATEMENT BY MORRIS E. SELBY

JANUARY 26, 1960.

Senator ROBERT S. KERR,
Chairman, Select Committee on National Water Resources,
Senate Office Building, Washington, D.C.

Understanding that a hearing on water resource problems in Indiana is to be held in Indianapolis on February 5, 1960, this statement is offered as being of possible interest.

Believing that if only 10-percent flood control of that watershed in Indiana which consists of 5770 square miles and of the three Indiana water districts Nos. 11, 12, and 13 could be the basis for future water resources planning toward greater industrial, recreational, and perhaps crucial flood control for downstream areas, the following is submitted:

1. Water resources activities in this area presently center around investigation of and future construction of Monroe Reservoir on Salt Creek, a tributary of East Fork of White River, and on investigation of future sites in the upper Muscatatuck Basin.

In addition, in the past year, a proposal has also been made to investigate toward construction of a dam on East Fork of White River near Portersville, Ind. Information concerning this proposal is attached to this statement.

2. It seems possible that even a 10-percent flood control of this watershed by construction of a dam near Portersville could be the deciding factor in holding back flood crests on East Fork of White River for sufficient time to permit similar flood crests on White River near Petersburg, Ind., to decrease to the point where serious flooding would be averted by relieving the latter river at its conjunction with the former river.

Records of flow have been checked back to the maximum recorded flow in May 1913 and a means of providing this 10 percent of control has been devised which has been named normal-flow/floodflow control.

3. In this watershed the 1958 population was estimated at 399,000 of which 163,000 were urban.

Estimates for 1975 place the area as having an expected increase to 203,000 urban population and by the year 2000 to 350,000, if a water supply can be found to support an urban population that size.

Water use per person is expected to rise from 205 gallons per person per day to 273 gallons in 1975 and to 500 gallons by 2000.

Presently the available water supply in this area is at a ratio of 40 to 60 as to ground water and surface water, with the 40 percent being mostly from farm wells often giving unsatisfactory supplies. Therefore really adequate water supplies are needed even now for the scattered urban population.

The pattern of water resources development in this watershed should begin with reservoirs as near the headwaters as is possible where usable sites permit.

Often these main sites could be supplemented by diversion of excess floodwaters to adjacent parallel sites which are not of sufficient area to be prime sites nor fed by streams of sufficient flow but which, by dams being constructed on them, could be used as containment reservoirs.

Such sites do occur along the course of both East Fork of White River, above the site proposed at Portersville and along the Muscatatuck River below the presently investigated sites near Paris, Ind.

To develop all these sites into a comprehensive system would of course cost probably $200 million for all the 15 sites usable as main and supplementary reservoirs, exclusive of Monroe Reservoir. But over a period of years this cost seems justifiable when the flood control it can furnish, the recreational areas it can create, the conservation of wildlife it can promote, the increase of ground water it can make, and the enormous water supply of water for industrial and domestic use it can furnish, is taken into account.

The economic limit for such a development in cost per acre-foot of water is difficult to state for this watershed. Presently, with towns the size of Jasper, Loogootee, Shoals, Austin, Mitchell, and West Baden being the principal urban centers of population and with the population therefore basically rural and

industry chiefly agricultural the picture is greatly different from that which can be expected to emerge in the next 25 to 50 years as agriculture lessens and urban population, if given sufficient impetus by water security, grows to make the area the center of a new industrial area which certainly would offer much more in income to the State and Federal Governments.

But, being by nature of its topography a region where high elevations do not exist where use can be made of them to create reservoirs, this area has been bypassed by Federal flood control agencies. In connection with such bypassing, after preliminary investigation of the proposed damsite at Portersville and it was turned over to the proper State commission for further study and such study was made, this proposal was dismissed because, being 90 percent downstream in the watershed and thus having a large drainage area it was stated that a reservoir here would need to be sufficiently large to store 2 million acre-feet of water.

Since it is extremely doubtful if a site that large exists in Indiana and possibly few such sites in all of United States, such a statement seemed slightly ridiculous.

Therefore use of sites which can provide storage to care for domestic and industrial needs without giving maximum flood control seems to hinge on the answers to the following questions:

1. Should reservoir sites for storage of surface water runoff be restricted to those locations which will furnish storage and flood control for the entire watershed?

2. Where such sites do not meet the storage requirement for the entire area but do offer considerable storage value and partial flood control should an exception be granted for their approval by the U.S. Corps of Engineers to qualify such sites for Federal flood control? Or should these sites be simply investigated, approved, or disapproved for feasibility as to geologic and economic factors and then such data made public for possible development by private capital?

3. (*a*) Can legislation, both State and Federal, be enacted to place development of such sites by private capital in a special category taxwise until a reasonable income from the investment is forthcoming?

(*b*) Would it be legal and prudent to legislate right of eminent domain over lands bounding such site so sufficient acreage and water rights would work to the advantage of private investors to make the investment profitable from subdivision sales of such lands and from water sales and services?

(*c*) If questions 3(*a*) and 3(*b*) can be answered affirmatively should such right of eminent domain extend to the point of right to establish definite contour levels below which no new building would be started and from which existing buildings, with just compensation, could be removed?

Respectfully,

MORRIS E. SELBY.

WEST LAFAYETTE, IND.

Information relative to proposed damsite and reservoir near Portersville, Ind., on East Fork of White River

[This information has been assembled privately]

Elevation of permanent pool	feet	440
Surface acres of permanent pool		2,342
Length of permanent pool	feet	174,000
Depth of permanent pool at dam	do	35
Approximate acre-feet of permanent pool		28,435
Elevation of seasonal pool	feet	460
Surface acres of seasonal pool		17,878
Length of seasonal pool (48.424 miles)	feet	263,760
Depth of seasonal pool at dam	do	55
Maximum width south of main stream, near dam	do	26,000
Maximum width north of main stream, near dam	do	16,000
Maximum width at head of seasonal pool	do	400
Storage between permanent and seasonal pools	acre-feet	150,262
Total storage of reservoir	do	178,797
Length of principal tributary to pool (Lost River)	feet	150,000
Surface area of seasonal pool with tributary	acres	18,065
Maximum storage with tributary	acre-feet	180,670

Supplementary reservoir sites along East Fork of White River:	
Slate Creek.	
Haw Creek.	
Friends Creek.	
Boggs Creek.	
Plaster Creek (estimated storage above 460 feet for all sites 30,000 acre feet).	
Maximum recorded flow interpolated from WSP records cubic feet per second	182,000
Average minimum flow interpolated from WSP records ---do	560
Possible flood control for short periods ---percent	10
Water supply from minimum second-feet flow for 250,000 people, at 500 gallons (per person per day).	
Estimated cost of prime dam and 6 supplementary dams	$120,000,000
Estimated value of water per year: at 0.75 cent per thousand gallons for 250,000 persons	$342,187.50
Recreational value: 28 miles of water course through Hoosier National Forest.	
Water supply value: In permanent storage ---gallons	9,289,650,000
Economic value: Opening of this watershed to industrialization and use for population growth with resulting returns to local, State, and Federal tax agencies would more than repay cost in 50 years.	

The CHAIRMAN. Next is Mr. Lewis S. Finch, chairman of the water resources committee.

Come around, Mr. Finch.

STATEMENT OF LEWIS S. FINCH, CHAIRMAN, INDIANA SECTION, AMERICAN WATERWORKS ASSOCIATION, WATER RESOURCES COMMITTEE

Mr. FINCH. Mr. Chairman, and members of the committee, my name is Lewis S. Finch. I am chairman of the water resources committee of the Indiana section of the American Waterworks Association. Thank you for the invitation to appear.

I would like to clarify a situation with respect to the American Waterworks Association before I begin. I represent not the national organization but the Indiana section of that national organization. The American Waterworks Association is a nonprofit organization whose major efforts are not devoted to influencing legislation.

The CHAIRMAN. I will say this. They have the constitutional right to indulge in that activity.

Mr. FINCH. Beg your pardon?

The CHAIRMAN. They have the constitutional right to indulge in that activity.

Mr. FINCH. The Bureau of Internal Revenue has certain limitations on nonprofit organizations to receive gifts.

The CHAIRMAN. Only on the deductibility for tax purposes of money invested in it.

Mr. FINCH. That is right.

The CHAIRMAN. That is not at all limiting on the provision in the Constitution, that the right of free assembly and petition to your Government will never be denied you.

Mr. FINCH. May I say that is probably why I am here today.

The CHAIRMAN. All right.

Senator HARTKE. May I say to you, you are speaking to the most expert man I know of in the field of finance and taxation. He knows

more about it than the Internal Revenue. I should not have said that.

The CHAIRMAN. My opinion is that while they may be more learned, they are not more effective.

Mr. FINCH. That is correct.

I shall read this statement:

U.S. SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES

GENTLEMEN: This is to affirm that the attached recommendations relating to Indiana water resources have been approved by the Indiana Section of the American Water Works Association in convention assembled, and that Lewis S. Finch, chairman of its water resources committee, has been authorized and directed to present them for your consideration.

Respectfully submitted.

HARVEY WILKE, *President.*

Attest:

C. H. CANHAM, *Secretary.*

RECOMMENDATIONS RELATING TO INDIANA WATER RESOURCES SUBMITTED TO THE U.S. SENATE SELECT COMMITTEE ON NATIONAL WATER RESOURCES BY THE INDIANA SECTION OF THE AMERICAN WATER WORKS ASSOCIATION

Whereas water is the lifeblood of Indiana communities, and without adequate and safe water supplies, their continued existence and the development of urbanized areas will be greatly jeopardized; and

Whereas in Indiana water is plentiful in years of average and above rainfall, its irregular distribution, coupled with frequent years of deficient precipitation, results in certain areas in inadequate ground water storage, excess surface water runoff with resultant low water yield in rivers and streams, thereby creating severe public water supply problems in many parts of the State; and

Whereas in years to come, demands upon Indiana public water supplies will be increased greatly by virtue of larger urbanized population and industrial expansion; and

Whereas the State of Indiana is cognizant of this and other problems having to do with water resources and, through a legislative study committee on water resources, is developing a program designed to insure that Indiana water resources will be properly and fully utilized.

Therefore it is the recommendation of the Indiana section of the American Water Works Association to the U.S. Senate Select Committee on National Water Resources that the Federal Government participate in the solution of Indiana public water supply problems:

1. By recognizing the paramount need of public water supplies with respect to water resources;

2. By continuing and expanding the work of the U.S. Geological Survey, the U.S. Public Health Service, and the U.S. Weather Bureau in the collection of basic data supplemented by the necessary analyses, interpretations, studies, and research which may be required in the development, protection, and utilization of the water resources of Indiana;

3. By developing Federal flood control and other water impounding projects in such a manner that they will assist in augmenting low streamflows, as by the construction of multipurpose reservoirs;

4. By promotion of soil conservation practices that will effectively retard surface water runoff and supplement ground water recharge, thus not only augmenting low streamflows but also protecting and enlarging ground water resources; and

5. By leaving necessary regulation and control of the use of the water resources of Indiana to the Indiana Legislature.

That is the statement, sir, of the Indiana section of the American Water Works Association.

The CHAIRMAN. Thank you very much, Mr. Finch.

Are there any questions?

Mr. Thomas F. Mumford, Sr., chairman of the Wabash Valley Bi-State Compact Commission.

STATEMENT OF THOMAS F. MUMFORD, CHAIRMAN, WABASH VALLEY BI-STATE COMPACT COMMISSION

Mr. MUMFORD. Senator Kerr and Senator Hartke, my name is Thomas Mumford. I am a farmer from Posey County, Ind., in the extreme southwestern tip of the State and my capacity here today is as chairman of the recently formed Wabash Valley Bi-State Compact Commission.

I should like to put on the record a copy of this rather unique compact by which the States of Indiana and Illinois have joined together, so far as the Wabash River Valley is concerned, in order to promote a unified and cooperatively planned program of action for the development of this great watershed, and I have here, sir, a copy of the compact.

The CHAIRMAN. That will be filed with the committee.

Senator HARTKE. Mr. Chairman?

The CHAIRMAN. Yes.

Senator HARTKE. If I may say, Senator Kerr, it was my privilege and pleasure as one of the first acts of mine in the U.S. Senate to introduce the bill which provided for this compact. I was joined in this particular bill by Senator Capehart of Indiana, Senator Douglas and Senator Dirksen from Illinois and with your help we were able to provide the necessary legislation which made this compact possible. It was signed, I think on the 25th of January of this year by the Governor of the State of Illinois and the Governor of the State of Indiana, following which we had quite a nice meeting down at Vincennes. I know it does not rival your Oklahoma organization in energy and financial ability, but it certainly does in spirit for the future.

Mr. MUMFORD. The Wabash Valley compact is the outgrowth of a popular demand by the people of the area to have the most effective medium possible created for the study and promotion of our valley. The University of Illinois, Indiana University, and Purdue University were solicited for advice, and through their splendid efforts, acting as a joint advisory committee, we secured a plan outlining definite steps toward a practical approach for comprehensive valley study. To quote their report made in 1956—

> A first major objective should be the establishment of a joint research and planning agency by the State governments of Illinois and Indiana—through an interstate compact.

In their 1957 sessions, the legislatures of both Indiana and Illinois unanimously approved resolutions which indicated their support of needed interstate regional objectives for the Wabash Valley.

In 1959 the bistate compact in its present form was passed—you have it there—by both State legislatures and ratified by the Congress of the United States, and a few weeks ago, as Senator Hartke mentioned, the appointed commissioners organized and have now started their assigned task, namely to systematically study the river valley as a complete entity, analyze its needs, and plan a program of action. In all this work we use the available facilities of our State universities, the multitude of governmental agencies on a Federal, State, and local level, and private foundations and associations. We are both impressed and inspired by the scope of our assignment.

Our advisers indicate that our principal problem is flood control, and as a valley farmer I can testify to its importance, not only to individual farm operators but to the entire economy up and down the river. Last year wasn't so bad, but in 1957 and 1958 we had devastating flood losses which were later tabulated by our State agricultural agencies. In Indiana alone there were 25 counties involved to this extent: In 1957 there were 464,967 acres flooded at a loss of $17,524,948; and in 1958, 534,568 acres flooded at a loss of $22,113,790. This is a loss of almost $40 million in 2 successive years not including the permanent losses to once-fertile fields, or the losses on the Illinois side of the river, which did not get counted in on the Indiana report, which would add at least 30 percent more.

Taking figures from the U.S. Government gage at Terre Haute, Ind., on the main stem of the Wabash, it is noted that from 1904 to 1946 we have had 14 major floods, and from 1947 to 1959 we have had 9 major floods. This increasing frequency of flooding is terryifying and cannot be overemphasized.

There are many other phases of the Wabash River to which we also direct our attention, as we are guided by our university counselors, but most of them are covered in separate departmental reports, and to avoid repetition I will mention only one or two.

Water conservation is one of these, and I refer you to the report made by the State of Indiana at the hearing of this Senate committee held in Detroit last October which has a very complete accounting of our water resources, the demands we expect to be made on them in the future, and our need for conserving both surface and ground water through the construction of impounding reservoirs and improved surface vegetation practices.

Also we recognize the great need for stream pollution control and low flow requirements in all the major rivers of our valley if we are to take full advantage of industrial opportunities which, of course, is the ultimate benefit to be gained through good water usage.

When I wrote this report up, I thought it might not be brought out so many times, but this part is accented very clearly in our university advisory report and I refer to the area of conservation in the sense of preserving our outdoor heritages.

There is one other area of thinking which may possibly not have been brought out in the reports of other governmental agencies but which is accented very clearly in our university advisory report. I refer to the area of conservation in the sense of preserving our outdoor heritages. These four factors are mentioned here.

Population is the first one. Of course estimates are that there will be twice as many people in the year 2000 as there are in 1950.

The next factor is buying power which he estimates twice the spending power in that span of time.

The next factor is leisure time and he predicts a 28-hour workweek in the year 2000 as against a 40-hour workweek now.

The fourth factor is mobility. The yearly average miles traveled per person today is 5,000 miles and he says that will increase to 9,000 miles by the year 2000.

All of these forces are pushing in the same direction so that it becomes a multiplying problem rather than a problem in addition.

Without going into Dr. Clawson's calculations, I submit his statement that the demand for outdoor recreation will be about 10 times the demand now. But the pressures on given recreational areas also hinges on the diminishing supply of good places, so it gets compounded further. I don't think we can overestimate the need for utilizing our water resources for outdoor recreation purposes.

Of course, I have touched on only a few of the many aspects of our assignment, but in closing let me emphasize that all of us in the Wabash Valley Bi-State Compact Commission keenly recognize the need for haste in our work in coordinating the efforts of our various water resource agencies. Too many crops have already been lost, too much land has been eroded, too many cities have already been damaged by the reputation of being flood towns, too many reservoir sites have been cluttered up by houses and roads, and too many natural floodways have been encroached upon by thoughtless real estate development. But we have many agencies working hard in the right direction at the present time, and we look for the fulfillment of our dreams of a flood-free, peaceful, and industrious valley in the years to come.

Thank you very much, sir.

The CHAIRMAN. Thank you very much, Mr. Mumford, for a very excellent, challenging, and enlightening statement.

That concludes the list of witnesses as it has been given to me.

Are there other witnesses who have not been heard who would like to file a statement for the record?

Senator HARTKE. Congressman Barr planned to be here.

Congressman Barr, we would be delighted to hear from you at this time.

The CHAIRMAN. You may proceed, Congressman.

STATEMENT OF HON. JOSEPH W. BARR, A U.S. REPRESENTATIVE FROM THE STATE OF INDIANA

Mr. BARR. Mr. Chairman and members of the committee, my name is Joseph W. Barr. I am a Member of Congress representing the 12th Congressional District of the State of Indiana.

It is my understanding that this investigation of water resources and needs embraces the entire United States, but that this particular hearing involves a region composed of several States.

I shall confine my brief remarks to the problem of water supply for the Indianapolis metropolitan area, which, insofar as planning is concerned, involves Marion and the immediately adjacent counties.

Water resources for this area consist of surface water from several comparatively small streams and ground water supply. The latter obviously is limited, and altogether insufficient in closely built-up areas as, for example, Indianapolis.

Indianapolis, the capital city of Indiana, is the largest city in this metropolitan area, and the figures of growth of water needs for this city are useful in considering the water supply problem.

Two principal streams furnish the water supply for Indianapolis, namely, White River and Fall Creek. Also, there are wells tapping the underground water resources as a secondary and relatively minor source.

The normal annual rainfall for this area is about 39 inches. This, of course, varies, and we have experienced severe drought periods and also extreme floods. This adequate rainfall has been conserved in this area by the construction of two reservoirs, each holding 7 billion gallons at spillway level. The first reservoir, named Geist, was completed in 1943; and the second, named Morse, in 1956, and these reservoirs are believed to be adequate for the needs of this metropolitan area up to about the year 1970.

How about the future? Let's consider the period 1930 to the year 2000. In 1930 the population served by this water system was 371,500, and in 1940, 401,000, in 1950, 480,000, and the estimated population for this current census year is 569,000. Estimates for the future population are 677,000 by 1970, 789,000 by 1980, 904,000 by 1990, and 1,022,000 by the year 2000.

For these populations, the average daily water demand in 1930 was 34.5 million gallons, in 1950, 53.35 million gallons. It is estimated that the demand in 1960 will be 71.1 million gallons per day, and so on progressively to 176.8 million gallons per day by the year 2000.

Now this brings us down to the crux of the problem. Up to now these demands have been met adequately. However, it must be recognized that the topography of this area was not designated for reservoir construction. Neither do we have large nearby rivers or lakes to draw on. So it behooves us to look ahead for future reservoir sites.

Obviously, from the standpoint of cost, the smart and farsighted course would be to purchase all feasible sites right now and protect them from encroachment by private and public structures. However, this ideal is impractical, because the people are weary of present taxes, and I doubt seriously whether they would approve special taxes or special water rates for investment in future supply, although this would be the way to solve the problem.

With such method out, the next available step is to protect such sites along the streams without having them pinpointed. Flood plain zoning is one method of protection, and I understand that plans for such zoning are already in preparation by the metropolitan plan commission for this area. While such zoning is primarily for flood protection purposes, it clearly would be helpful for future water supply reservoirs, in that the building of structures in these flood plains would be restricted.

Another protective measure is for the various governmental agencies—local, State, and Federal—to coordinate their planning. For example, the nationwide system of highways planned and now under construction can do a lot of harm while trying to solve the traffic problem. If such major highway plans are confining this work to highway traffic problems alone, they may block other improvements equally if not more important than the traffic problem.

We have an example of this right here in this area, where projected Highway No. 65, crossing Eagle Creek near Traders Point, is presumably to be built at an elevation which seriously handicaps, if not prevents, the storage of water for either supply, recreation, or perhaps flood control. This is one case of a Federal bureau and a State commission trying to solve one problem by ignoring others.

These protective measures do not necessarily cost money, but they do require complete coordination of all governmental agencies.

Mr. Chairman, I have a table of past and estimated future population, customers, and pumpage from the Indianapolis Water Co. for the year 1958 which I would like to have made a part of the record.

The CHAIRMAN. Without objection, it is so ordered.

(The information referred to follows:)

TABLE 3.—*Past and estimated future population, customers, and pumpage, Indianapolis Water Co., 1958*

Year	Population served	Number of customers	Persons per service	Pumpage		Ratio, maximum to average day	Gallons per capita per day (average day)	Gallons per capita per day (maximum day)
				Average day (million gallons daily)	Maximum day (million gallons daily)			
1930	371,500	71,206	5.2	34.54			93.0	
1931	371,700	71,786	5.2	30.46	54.03	1.78	81.9	145
1932	372,000	70,222	5.3	27.44	38.25	1.38	73.8	103
1933	372,800	70,825	5.3	26.46	42.26	1.60	71.0	113
1934	373,800	72,438	5.2	28.05	42.49	1.52	75.1	114
1935	375,500	73,858	5.1	26.47	40.70	1.54	70.5	108
1936	378,100	75,524	5.0	31.05	48.14	1.55	82.1	127
1937	381,500	76,271	5.0	29.19	37.35	1.28	76.5	98
1938	386,000	77,375	5.0	28.95	38.65	1.34	75.0	100
1939	393,000	79,078	5.0	30.16	44.52	1.47	76.7	113
1940	401,000	81,112	4.9	32.75	50.08	1.53	81.7	125
1941	415,000	84,246	4.9	36.87	60.09	1.63	88.8	145
1942	430,000	86,212	5.0	39.16	51.97	1.33	91.1	121
1943	436,000	87,193	5.0	45.36	60.61	1.34	104.0	129
1944	436,000	88,183	4.9	48.05	66.55	1.38	110.2	153
1945	445,000	89,145	5.0	48.50	57.53	1.19	109.0	129
1946	445,000	90,628	4.9	49.70	64.03	1.29	111.7	144
1947	445,000	93,284	4.8	52.41	73.27	1.40	117.8	164
1948	460,000	96,851	4.7	53.77	73.96	1.38	116.9	161
1949	480,000	101,731	4.7	52.17	68.58	1.31	108.7	143
1950	480,000	105,824	4.5	53.35	70.27	1.32	111.1	146
1951	480,000	109,245	4.4	57.32	75.85	1.32	119.4	158
1952	490,000	112,598	4.4	59.16	86.38	1.46	120.7	176
1953	495,000	115,676	4.3	61.98	94.13	1.52	125.2	190
1954	505,000	118,521	4.3	62.21	99.27	1.60	123.2	197
1955	517,000	122,557	4.2	63.07	90.96	1.44	122.0	176
1956	530,000	126,326	4.2	63.39	91.84	1.45	119.6	173
1957	540,000	129,169	4.2	64.11	90.66	1.41	118.7	168
Estimates:								
1960	569,000	138,800	4.1	71.1	113.8	1.60	125.0	200
1970	677,000	169,200	4.0	92.7	148.3	1.60	137.0	219
1980	789,000	197,200	4.0	117.5	188.0	1.60	149.0	238
1990	904,000	226,000	4.0	145.5	232.8	1.60	161.0	257
2000	1,022,000	255,500	4.0	176.8	282.9	1.60	173.0	277

The CHAIRMAN. Thank you very much, Mr. Barr.

Mr. BARR. Thank you, Mr. Chairman.

The CHAIRMAN. Are there any questions?

Senator HARTKE. No, but I would like to thank the Congressman for his informative statment.

The CHAIRMAN. Senator Hartke, is there anything further, sir?

Senator HARTKE. There are no other witnesses at all.

Is there anyone who would care to be heard?

We do not close this off without giving an opportunity for everyone to be heard who wants to be heard.

I want to say on behalf of myself and on behalf of the people of the State of Indiana that we are deeply indebted to Senator Kerr as chairman of this select committee for coming to the State of Indiana, particularly under the circumstances, which were extremly difficult.

As I previously indicated to other members, they have been in late session in the Senate and only after voting last night at 9:30 and

arriving here at approximately 1:30 this morning was it possible for Senator Kerr to come, even in spite of the condition of the weather. Also the fact that Senator Hart from Michigan could be with us demonstrates his keen interest in his neighboring State.

I think it is only appropriate for us on behalf of the people of the State of Indiana that we thank Senator Kerr and Senator Hart for appearing here today.

Frankly, we thank you for listening to our story. We hope that it will produce effective and concrete results, which I am sure it will, not alone for the benefit of the State of Indiana, but for the benefit of Oklahoma and the Nation as well.

And I hope you will come back often, Senator Kerr. You are one of our favorites, and one of mine, particularly.

The CHAIRMAN. Thank you very much, Senator Hartke.

I want to congratulate the people of Indiana for the fine hearing they had and wonderful statements they have given us, with the picture they have drawn of their needs for conservation of water.

Copies of these hearings will be available to your congressional representatives when they are tabulated, compiled and printed.

That will be all for today.

(Whereupon, at 2:10 p.m., Friday, February 5, 1960, the committee recessed subject to the call of the Chair.)

(The following statement was inadvertently omitted from the record of the hearing held at Topeka, Kans., on November 18, 1960:)

STATEMENT BY THAD KINNAMAN, CHAIRMAN, WATERSHED COMMITTEE, KANSAS ASSOCIATION OF SOIL CONSERVATION DISTRICTS

Kansas Water News is a bimonthly newsletter of the Kansas Water Resources Board, and is a source of erudite information on water matters in Kansas. An article in the current issue concerning the drainage area of the Kansas River says in part: "Most watershed thinking or planning to date in this part of the State has stressed the flood control and erosion control benefits of a watershed program, with the water supply potentialities receiving little, if any, serious consideration. This is natural in view of the concern in preventing recurring flood damages, the fact that the water supply features of a watershed program would have to be financed at the local level, and because in many cases the incorporation of water storage in watershed reservoirs would primarily benefit nondistrict lands and people." The article continues, calling attention to the advantages of planning water supply in connection with flood detention structures.

It is my purpose to call attention to the current method of allocating costs in multipurpose structures. The complexity of this method and the resultant excessive portion of the costs, which must be borne by local interests, doubtless account for much of the local people's failure to more seriously consider the inclusion of a water supply in the design of these upstream structures.

In Flint Hill—or bluestem grass—region of southern Kansas, the interest in a continuous source of useful water and the availability of such a water supply have, in fact, accounted for the greater part of the initial interest in our watershed district activity.

As Public Law 566 is read and understood among local people, the Federal Government will pay the cost of construction and engineering for flood protection purposes. Any additional water which the local people may desire to store may be added to the design of these structures, and the additional cost will be shared, in the case of agricultural water supply, or water for recreation. And water for municipal or industrial use may be supplied if local interests will pay the additional cost involved. This is not just a foolish assumption. The law, as passed by Congress says, in section 4: "The Secretary (of Agriculture) shall require as a condition to providing Federal assistance for the installation of works of improvement that local organizations shall * * * (2) assume * * * (B) all of the cost of installing any portion of such works applicable to other purposes except that any part of the construction costs (including engineering costs)

applicable to flood prevention and features relating thereto shall be borne by the Federal Government and paid for by the Secretary out of funds appropriated for the purpose of this Act."

However, as a local watershed progresses with the incorporation of a local district, preparation of an application for Federal assistance, and the preparation of a work plan, the intricacies of the program become better understood and it is made clear to the local people that instead of paying only the additional costs in a multipurpose structure, they will be required to share in the cost as dictated by a complex device called the separable costs-remaining benefits formula.

Under this formula the local interests may pay half the cost of a structure, although reserving only a third of its water holding capacity. A case in point is the town of McLouth in the Big Stranger watershed district, 25 miles northeast of Topeka. The work plan, now in the hands of Big Stranger watershed directors, calls for McLouth to pay $75,000 to reserve 380 acre-feet in structure 9–2, which is also designed to hold 325 acre-feet of sediment pool and 382 acre-feet of flood water detention storage. For the last two items, the engineering estimate is only $86,000.

In the same structure, Federal costs are $123 per acre-foot while local people pay $196 per acre-foot in addition to furnishing the site and maintenance. The formula is so devised that the local interests in no case would pay less than the incremental cost, or the difference between a single-purpose flood detention structure and the multipurpose structure, including a water supply; and in virtually every case, will pay considerably more. The result is, of course, that nearly every small community will decide against sharing. And nearly every individual, or group of individuals, will likewise drop their proposal for additional water storage, except in cases of dire need.

The use of this formula results from a directive of the Bureau of the Budget referred to as A–47, which was issued prior to the enactment of Public Law 566, and was thought to be suitable for large downstream reservoirs such as are built by the Corps of Engineers and the Bureau of Reclamation.

Representatives of some Government agencies have suggested that the methods of cost allocation should be uniform for the various programs and agencies. This line of thinking does not take into account the work, the time and effort, by local people which is peculiar to the watershed program.

The watershed program alone requires suitable soil conserving land treatment of at least 75 percent of the drainage area above each structure. In the watershed program, local organizations must provide acceptable sites for the detention structures.

Only in the watershed program is the Federal Government freed from all expense subsequent to construction, for again, the local interests must provide suitable maintenance and operation.

Our States have enacted laws to carry out these provisions and local people donate considerable time and work. In addiiton, local people pay local taxes to do the necessary financing. It would seem then, that in administering the law, the Federal Government should carry out the clear intention of Congress.

This was the subject of a resolution of the National Association of Soil Conservation Districts in their national convention at Houston, last February, which reads: "*Be it resolved*, That NASCD go on record as being opposed to the separable costs-remaining benefits formula for cost allocation because it tends to prevent the desirable development of multiple-purpose projects; and in lieu of this formula, all costs should be computed as incremental to costs allocated to flood prevention."

Furthermore, because of the use of this formula it is necessary to show, in planning a structure in which there is no local cost sharing, that its only benefit is flood protection, although the structure may be highly desirable, locally, for recreation, domestic water supply, as a reserve against drought, recharge of ground water, irrigation and pollution abatement. None of these benefits may be considered, for the separable cost-remaining benefits formula dictates that local interests must then share the cost, even though flood control benefits completely justify the structure.

This blindness to water conservation benefits by those giving technical assistance to a local organization in planning its watershed is a constant source of contention.

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